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Report

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CANADA

776M

NATIONAL ENERGY BOARD

ANNUAL REPORT

FOR THE YEAR ENDED
31 DECEMBER 1963-70

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NATIONAL ENERGY BOARD
CANADA

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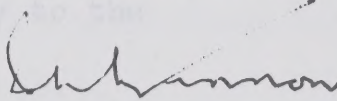
31 March, 1964.

The Honourable Mitchell Sharp, P.C.,
Minister of Trade and Commerce,
O t t a w a.

Dear Sir:

In accordance with the provisions
of Section 91 of the National Energy Board
Act, Statutes of Canada, 1959, Chapter 46,
I have the pleasure to submit the Annual
Report of the Board for the year ending
31 December, 1963.

Yours faithfully,


I.N. McKinnon,
Chairman.

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REPORT OF THE NATIONAL ENERGY BOARD FOR THE
YEAR ENDING 31 DECEMBER, 1963

INTRODUCTION

During 1963 the work of the Board in fulfilment of both its regulatory and advisory responsibilities under the National Energy Board Act increased substantially. Over this twelve-month period the Board issued 570 certificates, licences and orders compared to 441 in 1962. Seven public hearings were held in connection with certificate and licence applications and one in respect of an application to fix compensation in respect of the working of a quarry being prevented by a pipe line.

The Board continued its advisory activities under Part II of the Act. The year was marked by the continued success of the National Oil Policy, which required the detailed attention of the Board, and by the Government's announcement of a far-reaching National Power Policy.

Details of the Board's activities are to be found in ensuing sections of this report.

CONSTRUCTION OF FACILITIES

The Board held public hearings during 1963 in regard to an application for a new oil pipe line, an application for additional gas pipe line facilities, and an application for two new international power lines. Certificates authorizing construction of these facilities were duly issued and the Board also issued four certificates in respect of a new gas pipe line, additional gas pipe line facilities, additional oil pipe line facilities, and an international power line, in response to applications heard in 1962. A further international power line was certificated by the Board early in 1964 following a public hearing on the application in the latter part of 1963. These certificates, issued with the approval of the Governor in Council, are summarized in Appendix I.

Under Section 49 of the National Energy Board Act the Board is empowered to approve the construction of pipe lines or branches or extensions to pipe lines not exceeding 25 miles, and miscellaneous pipe line facilities, by issuing an order exempting such construction from the provisions of Sections 25 to 29 under the Part III certificate proceedings. In the normal course, the Board exercises its discretion in issuing exemption orders under Section 49 where, in its opinion, it would not be inconsistent with the public interest so to do. During 1963 the Board issued 13 exemption orders for gas and oil pipe line facilities, details of which may be found in Appendix IV.

Three orders were issued during 1963 amending electrical certificates and one exemption order was issued under Section 49 respecting an international power line, the construction of which was designed to provide a border accommodation.

In order to assist industry in the making of applications for approval of pipe line construction under Part III of the Act and to simplify the procedure in respect thereto, the Board in 1963 issued a Memorandum of Guidance setting forth for reference purposes the types of construction that in normal circumstances would be the subject of application for certificate and those which might properly be the subject of an application under Section 49.

EXPORTS OF GAS AND ELECTRICAL POWER

With the approval of the Governor in Council the Board during 1963 issued seven licences for the export of electrical power, which involved two public hearings in 1963 and one in 1962. A further electrical power export licence was issued in 1964 after a public hearing of the application late in 1963. These licences, along with nine electrical power exports authorized by order under Section 6A of the Part VI Regulations, are summarized in Appendix II. The Board issued two orders amending electrical licences in 1963.

The Board also issued, after public hearing and with the approval of the Governor in Council, two licences for the

export of butanes by pipe line. These licences, along with two orders authorizing butane exports pursuant to Section 16A of the Part VI Regulations, are summarized in Appendix III.

MISCELLANEOUS ORDERS

In September, 1963, the Board heard an application by George Hortig and M.J. Labelle Company Limited to fix compensation to be paid by Northern Ontario Pipe Line Crown Corporation and Trans-Canada Pipe Lines Limited because of the working of a quarry being prevented and stopped by reason of the respondents' pipe line and also for any minerals that could not be obtained by reason of the pipe line and for an order for payment by the respondents to the applicants accordingly. The Board's decision to dismiss the application was embodied in Order MO-1-64, dated 25 February, 1964.

Many of the requirements of the Act relate to pipe line safety. This is particularly true of crossing orders issued pursuant to Sections 76 and 77 and leave to open orders pursuant to Section 38. In 1963 the Board issued 301 crossing orders and 49 leave to open orders. In fulfilment of its obligation to promote the safety of operation of pipe lines, the Board staff carried out field inspections relating to the pressure testing of gas and oil pipe lines, gas compressor and oil pumping facilities and other miscellaneous pipe line installations.

The Board issued 25 orders approving pipe line plans, profiles and books of reference, 22 permits correcting such

plans and profiles, 29 orders approving compressor and pumping station construction, 34 miscellaneous orders including a number related to the sale, conveyance or lease of parts of pipe lines within the Board's jurisdiction, 46 amending orders, 4 rescinding orders, 1 safety order. The Board issued 3 emergency orders for the exportation of gas during the year pursuant to Sections 17 and 18 of the Part VI Regulations.

SPECIAL STUDIES AND LIAISON

Pursuant to its obligations under Part II of the Act to review matters relating to energy, and pursuant to its responsibilities under Part VI of the Act relating to exports of gas and electricity, the Board continued the preparation of detailed supply and demand forecasts and the development of its statistical records relating to energy and commenced work on the preparation of a long-term energy forecast.

During 1963 the Board published a "Short-Term Energy Forecast 1960-1966" prepared by staff. The published study was a summary of a more detailed historical review and short-term forecast prepared by the staff for internal use. Part of a continuing analysis of Canada's short and long-term energy prospects, the published study provided a brief

history of Canadian consumption as well as a supply and demand balance for each of the major sources of energy.

Development of energy forecasts requires accurate historical data on supply and demand for the various energy sources. In developing its data the Board has adhered to the policy of utilizing insofar as possible data collected and published by the Dominion Bureau of Statistics. In this regard the Board has established a close liaison with the Bureau with a view to assisting in the improvement of energy statistics. During 1963 considerable progress was made in improving supply and demand balances for petroleum, natural gas, coal and electricity in co-operation with the Inter-departmental Advisory Committee on Energy Statistics, the establishment of which was sponsored by the Board and the Bureau. In particular progress was made in consolidating and improving the procedures and content of surveys and subsequent statistical reports in connection with electric power and energy matters.

The Board has maintained up-to-date estimates of reserves and producibility for crude oil, natural gas and natural gas liquids. This work has been supported by liaison with interested provincial agencies and trade associations and by field trips.

The Board was actively engaged during 1963 in the work of the Federal-Provincial Working Committee on Long-

Distance Transmission. The Board also continued to be involved in feasibility studies associated with the development of large remote hydroelectric sites and their potential power export possibilities, in particular in connection with the work of the Nelson River Programming Board. More recently, the Board has co-operated extensively with the Atlantic Development Board in the power and energy aspects of the latter's responsibilities.

The National Energy Board continued its work in conjunction with a Canadian Standards Association Committee to establish a Canadian code for the design, construction and operation of oil and gas pipe lines, and in connection with the establishment of a CSA code for aluminum pressure piping. This work is directed toward the maintenance and improvement of safety standards for pipe lines. The Board also continued to participate in the work of the Canadian Standards Association Electrical Code Part III Committee.

During the year the Board continued to discharge its responsibilities for emergency planning in the energy field in conjunction with the Emergency Supply Planning Branch of the Department of Defence Production and a number of energy industry advisory committees. The Board also strengthened its liaison with international organizations such as the Organization for Economic Co-operation and Development. The Board contributed to special reports by

the oil and gas committees, and to the statistical series for energy, of the OECD.

FINANCIAL

In discharging its responsibilities under Part IV of the Act in respect of traffic, tolls and tariffs, the Board continued its analysis of tariffs filed and contracts entered into by companies under the Board's jurisdiction. The results of the operations of the individual companies have also been under regular review, based on financial statements filed with the Dominion Bureau of Statistics and with the Board. With the concurrence of the companies involved, a number of refinements have been made in the data submitted and additional detail in connection therewith has been obtained through visits to the companies' offices by the Board's financial examiners.

NATIONAL OIL POLICY

The National Oil Policy, announced in February, 1961, proposed that production of oil, including natural gas liquids, would reach approximately 800,000 b/d in 1963. Compared with an average of 544,000 b/d in 1960, a 1961 objective was set at an average of 640,000 b/d. No specific target was established for the year 1962.

These increases were to be achieved by increased use of Canadian oil in domestic markets west of the Ottawa Valley and by expansion of export sales, largely in existing markets which could be reached through established pipe lines. The growth in domestic use required substituting in Ontario markets west of the Ottawa Valley, products refined from Canadian crude for those supplied from foreign crude. In Ontario this was to involve displacement of imports of crude and progressive reduction in imports of foreign products and in transfers of products refined from foreign crudes at Montreal. It also meant increasing refining capacity in Ontario to enable the Ontario market west of the Ottawa Valley to be supplied almost entirely from Canadian crudes.

The National Oil Policy was predicated on a high degree of co-operation and planning between the Government and industry and in this liaison the Board has acted as the Government's instrument. The success of the Policy to date reflects the high degree of co-operation by industry.

In 1961 production of crude oil and natural gas liquids reached an average 643,000 b/d, in 1962 an average 736,000 b/d and in 1963 an average 787,000 b/d.

Over these three years the proportionate increase in production shifted from gains attributable to growth in export markets to those attributable to growth in domestic markets. Imports of crude oil into Ontario were virtually

eliminated with the exception of minor volumes for special purposes. Imports and transfers of products of foreign origin into Canada west of the Ottawa Valley were reduced.

The full impact of the National Oil Policy on the domestic market will be felt in 1964 since a large part of the increase in refining capacity in Ontario and the modification in flow in the Trans-Northern Pipe Line came into operation only during the last few months of 1963.

NATIONAL POWER POLICY

On 8 October, 1963, the Minister of Trade and Commerce, The Honourable Mitchell Sharp, announced in the House of Commons a new National Power Policy. This represented a substantial departure from previous restrictionist attitudes towards large power exports and reflected the important changes in technology and economics of the last few years in the electric power supply industry.

Mr. Sharp said:

"... Our policy places particular emphasis on

- (a) the desirability of Canada taking fullest advantage of the evolutionary changes that have taken place in the nature of the power industry, including technological improvements in generating and transmission facilities, and the reduced costs of power associated with these;
- (b) the provision of abundant supplies of electrical energy to consumers throughout Canada at the lowest possible cost to encourage and accelerate economic development and growth;

- (c) the need for Canada to have a flexible export policy which, inter alia, would permit the export of large blocks of power to the United States for a relatively long period of years to assist in the immediate development of certain large-scale Canadian power projects, particularly undeveloped hydro resources which might not be viable in the near future unless provision were made for the marketing in the United States of a significant portion of their output; and
- (d) the strengthening of our balance of payments position through the export of power surplus to our own needs.

"... the Government has decided to develop and carry forward effective policies embracing two essential concepts:

first, encouraging development of large low-cost power sources and the distribution of the benefits thereof as widely as possible through interconnections between power systems within Canada; second, encouraging power exports and interconnections between Canadian and United States power systems where such induce early development of Canadian power resources.

More specifically, our policy is as follows:

The Government, having due regard to the rights of the provinces with respect to the development and distribution of power and keeping in mind its own responsibilities in this field, desires to encourage interconnection agreements and maximum utilization of intertie facilities between electrical systems, both publicly and privately-owned.

The Government, in cooperation with the provinces, has already undertaken studies to investigate the possibility of interconnecting power systems across the country. It realizes that the complete interconnection may not be economically feasible for some years to come. Nevertheless, it would appear that by establishment of interconnection facilities between utilities in adjacent regions wherever practical, a national system might be developed by a succession of stages, each valuable in itself.

"The Government believes that it would be beneficial to Canada and to the United States, and not prejudicial to the national interest to encourage interconnection agreements and interties between utilities in the respective countries in cases where the interconnection agreements suitably protect the Canadian interest.

In cases in which Canadian utilities enter into appropriate interconnection agreements with United States utilities, the Government will be prepared, upon recommendation of the National Energy Board, to give favourable consideration to the authorization of export of power to United States utilities for purposes including the following:

- (i) to provide standby service in the case of emergencies, thus making possible the reduction of reserve generating capacity otherwise required by the utilities;
- (ii) to provide for economy flows between plants or systems;
- (iii) to provide for sales of surplus interruptible energy;
- (iv) to provide for exchange of power and energy to take advantage of load, watershed or other diversities;
- (v) to provide for exports of firm power for limited periods to make possible the step by step construction of the most economical generating facilities on either side of the boundary.

The Government also believes that it would be in the national interest, in suitable cases, to licence the export of large blocks of firm power to United States utilities to permit the development of large-scale remote hydro or other power projects which would not be viable unless supported by the export for long periods of a significant proportion of the power generated. The National Energy Board Act permits such exports for periods of up to 25 years. Provision would have to be made for the recapture of such exported power over a period of years, in stages commensurate with the need or ability of the Canadian

market to absorb it, and upon notice adequate to enable the importing utility to arrange for replacements. The provisions of the National Energy Board Act would, of course, apply to any case of this nature, as to any export of power.

The Government will, upon recommendation of the National Energy Board, continue to authorize the export of relatively small amounts of power and energy to border areas in the United States where, for geographical reasons, Canada is the economic source of supply."

REGULATIONS

During the year an amendment to the Oil Import Registration Regulations was made pursuant to Section 89 of the Act and approved by Order in Council P.C. 1963-874 dated 6 June, 1963, amending the definition of Region 2 set forth in subsection (1) of Section 5. The National Energy Board Part VI Regulations were also amended pursuant to Section 85 and approved by Order in Council P.C. 1963-1326 dated 4 September, 1963, to provide that the Board might authorize by order the export through an oil pipe line of propane and butane during a period not exceeding 12 months and in quantities not exceeding 365,000 barrels in the aggregate of each product.

PERSONNEL

At the conclusion of 1963 the Board personnel totalled 61 permanent and 2 casual compared to 57 permanent staff at the end of 1962. Authorized establishment is 73. During 1963 there were 8 additions and 4 separations.

TABLES

Appended hereto are the following statistical
tables:

Table I	-	Exports of Crude Oil and Equivalent to the United States
Table II	-	Subsisting Licences to Export Natural Gas
Table III	-	Exports of Natural Gas to the United States
Table IV	-	Imports of Natural Gas from the United States
Table V	-	Exports of Electrical Energy to the United States

All of which is respectfully submitted,



I.N. McKinnon,
Chairman.

31 March, 1964.

APPENDIX I
CERTIFICATES - SECTION 44

APPLICANT	FACILITIES	ESTIMATED COST	HEARD	ISSUED	CERTIFICATE No.
<u>GAS PIPE LINES</u>					
1. PETROLEUM TRANSMISSION COMPANY	A 6-5/8 INCH DIAMETER PIPE LINE, 577 MILES LONG, AND WORKS CONNECTED THEREWITH, EXTENDING FROM THE SASKATCHEWAN-ALBERTA BOUNDARY TO A POINT NEAR WINNIPEG, MAN., FOR THE TRANSMISSION OF PROPANE AND BUTANES.	\$11,500,000	30 & 31 OCT., 1 NOV., 1962	24 JAN. 1963	GC-19
2. TRANS-CANADA PIPE LINES LIMITED	CONVERSION OF CERTAIN COMPRESSOR STATIONS BETWEEN THE SASKATCHEWAN-ALBERTA BOUNDARY AND WINNIPEG, MAN., TO ENABLE THE USE OF PROPANE AS AN ALTERNATIVE FUEL TO NATURAL GAS.	\$ 306,000	1 NOV. 1962	24 JAN. 1963	GC-20
3. TRANS-CANADA PIPE LINES LIMITED	204.85 MILES OF 34-INCH DIAMETER PIPE IN 6 SECTIONS IN SASKATCHEWAN, AND 3 SECTIONS IN MANITOBA, AND A CERTAIN ADDITIONAL COMPRESSOR STATION, CERTAIN COMPRESSION FACILITIES AT 13 POINTS IN SASKATCHEWAN, MANITOBA AND ONTARIO, ALL TO BE CONNECTED WITH ITS EXISTING PIPE LINE; TOTAL ADDITIONAL HORSEPOWER 85,200.	\$ 50,170	27 MAR. 1963	26 APR. 1963	GC-21
<u>OIL PIPE LINES</u>					
1. INTERPROVINCIAL PIPE LINE COMPANY	41 MILES OF 34-INCH DIAMETER PIPE IN FOUR SECTIONS OF LOOP LINE IN MANITOBA PARALLEL TO EXISTING PIPE LINE.	\$ 5,206,000	18 DEC. 1962	4 MAR. 1963	OC-14
2. COCHIN PIPE LINES LTD.	A 6-5/8 INCH DIAMETER PIPE LINE, 320 MILES LONG, AND WORKS CONNECTED THEREWITH, BETWEEN REGINA, SASK., AND THE PAS, MAN., FOR THE TRANSMISSION OF GASOLINE, DIESEL, FUEL, FUEL OIL, KEROSENE, PROPANE, OF BUTANES AND SUCH OTHER FORMS OF PROCESSED LIQUID HYDROCARBONS AS MAY BE CONVENIENT.	\$ 6,635,000	23 MAY 1963	30 JULY 1963	OC-16

APPENDIX I (CONT'D)

CERTIFICATES - SECTION 44

APPLICANT	FACILITIES	ESTIMATED COST	HEARD	ISSUED	CERTIFICATE No.
INTERNATIONAL POWER LINE 1. THE CONSOLIDATED MINING AND SHELTING COMPANY OF CANADA LIMITED	A 14.2 MILE INTERNATIONAL POWER LINE, BEING ONE 230 KV CIRCUIT AND FACILITIES TO CONNECT THE POWER SYSTEM OF THE APPLICANT AT ITS WANETA STATION ON THE REND D'OREILLE RIVER WITH THE POWER SYSTEM OF THE BONNEVILLE POWER ADMINISTRATION NEAR NELWAY. B.C., FOR THE TRANSMISSION OF ELECTRICAL ENERGY ON AN EQUICHANGE TRANSFER BASIS.	\$ 1,965,000	11 SEPT 1962	3 JAN 1963	EC-111-1
2. MAINE AND NEW BRUNSWICK POWER COMPANY LIMITED	ONE 1.75 MILE INTERNATIONAL POWER LINE AND ONE 1.9 MILE INTERNATIONAL POWER LINE, WITH ASSOCIATED SUB- STATION MODIFICATIONS, TO CONNECT AT 69 KV THE TINKER GENERATING STATION OF THE APPLICANT WITH THE POWER SYSTEM OF THE MAINE PUBLIC SERVICE COMPANY OF PRESQUE ISLE, MAINE, U.S.A. FOR THE EXPORT OF POWER PRODUCED AT THE APPLICANT'S TINKER PLANT.	\$ 246,000	26 JULY 1963	19 SEPT 1963	EC-111-2 EC-111-3
3. ONTARIO-MINNESOTA PULP AND PAPER COMPANY LIMITED	ONE 110 KV INTERNATIONAL POWER LINE TO CONNECT THE POWER SYSTEM OF ONTARIO-MINNESOTA PULP AND PAPER COMPANY IN FORT FRANCES, ONTARIO, WITH THE POWER SYSTEM OF MINNESOTA AND ONTARIO PAPER COMPANY IN INTER- NATIONAL FALLS, MINNESOTA, U.S.A.	\$ 42,000	19 NOV 1963	20 FEB 1964	EC-111-5

APPENDIX I (CONT'D)

CERTIFICATES - SECTION 95

COMPANY	FACILITY	ISSUED	CERTIFICATE NO.
<u>GAS PIPE LINE</u>			
1. PROVINCIAL GAS COMPANY LIMITED	AN EXISTING 12-3/4 INCH DIAMETER PIPE LINE, APPROXIMATELY 1420 FEET LONG, SUSPENDED FROM THE 'PEACE BRIDGE' AT FORT ERIE, ONT., FROM THE INTERNATIONAL BOUNDARY THEREON TO A POINT ON THE SHORE OF THE NIAGARA RIVER (NOT IN OPERATION).	17 JAN. 1963	GC-18
<u>OIL PIPE LINE</u>			
1. IMPERIAL OIL LIMITED	TWO EXISTING 8-5/8 INCH DIAMETER PIPE LINES, EACH 1171 FEET LONG, FROM THE INTER- NATIONAL BOUNDARY IN THE ST. CLAIR RIVER TO A POINT ON THE SHORE THEREOF NEAR SARNIA, ONT. (NOT IN OPERATION)	9 MAY 1963	OC-15

APPENDIX II

LICENCES - EXPORTS OF ELECTRICAL POWER AND ENERGY - SECTION 82

APPLICANT	CLASS	KILOWATTS (THOUSANDS)	ANNUAL KILOWATTHOURS (MILLIONS)	TERM	HEARD	ISSUED	LICENCE NUMBER
1. CONSOLIDATED MINING AND SMELTING COMPANY	INTERRUPTIBLE	-	500 GROSS 0 NET	1/7/53 TO 30/5/83	11/9/52	3/1/63	EL - 20
2. MAINE AND NEW BRUNSWICK ELEC. POWER COMPANY LIMITED	FIRM	11.6 TO 42	85 TO 250	19/9/53 TO 30/5/88	26/7/63	11/9/63	EL - 22
3. MAINE AND NEW BRUNSWICK ELEC. POWER COMPANY LIMITED	INTERRUPTIBLE	-	25	19/9/63 TO 30/5/88	26/7/63	11/9/63	EL - 23
4. NEW BRUNSWICK ELECTRIC POWER COMMISSION	FIRM	3	16	17/10/63 TO 31/12/67	25/7/63	8/10/63	EL - 24
5. NEW BRUNSWICK ELECTRIC POWER COMMISSION	INTERRUPTIBLE	-	115	17/10/63 TO 31/12/67	25/7/63	8/10/63	EL - 25
6. NEW BRUNSWICK ELECTRIC POWER COMMISSION	INTERRUPTIBLE	-	115	17/10/63 TO 31/12/67	25/7/63	8/10/63	EL - 26
7. NEW BRUNSWICK ELECTRIC POWER COMMISSION	FIRM	20	105	17/10/63 TO 31/12/67	25/7/63	8/10/63	EL - 27
8. ONTARIO-MINNESOTA PULP AND PAPER COMPANY LIMITED	FIRM	8.5 TO 14.5	62.43 TO 127.02	1/3/64 TO 31/12/70	19/11/63	20/2/64	EL - 28

ORDERS - EXPORTS OF ELECTRICAL POWER AND ENERGY PART VI REGULATIONS SECTION 6A

APPLICANT	CLASS	KILOWATTS	ANNUAL KILOWATTHOURS (MILLIONS)	TERM FROM DATE OF ISSUE - MONTHS	ISSUED	ORDER NO.
1. THE CANADIAN TRANSIT COMPANY	FIRM	100	0.025	12	4/7/63	EL0-10
2. NEW BRUNSWICK ELECTRIC POWER COMMISSION	FIRM	300	1.0	12	3/10/63	EL0-11
3. NEW BRUNSWICK ELECTRIC POWER COMMISSION	FIRM	700	3.250	12	3/10/63	EL0-12
4. NEW BRUNSWICK ELECTRIC POWER COMMISSION	FIRM	100	.1	12	24/10/63	EL0-13
5. NEW BRUNSWICK ELECTRIC POWER COMMISSION	FIRM	12	0.010	12	24/10/63	EL0-14
6. NEW BRUNSWICK ELECTRIC POWER COMMISSION	FIRM	25	0.010	12	24/10/63	EL0-15
7. WEST KOOTENAY POWER & LIGHT CO. LTD.	FIRM	10	0.050	12	12/12/63	EL0-16
8. THE DETROIT AND WINDSOR SUB- WAY COMPANY	FIRM	300	1.0	12	12/12/63	EL0-17
9. NORTHERN BRITISH COLUMBIA POWER CO. LTD.	FIRM	10	0.040	12	20/12/63	EL0-18

ORDERS AMENDING EXISTING ELECTRIC POWER EXPORT LICENCES ISSUED BY THE BOARD

APPLICANT	ASSOCIATED LICENCE	DATE OF AMENDMENT	AMENDMENT ORDER NUMBER
1. NEW BRUNSWICK ELECTRIC POWER COMMISSION	EL-2	18/10/63	A0-1-EL-2
2. NEW BRUNSWICK ELECTRIC POWER COMMISSION	EL-3	18/10/63	A0-2-EL-3
3. NEW BRUNSWICK ELECTRIC POWER COMMISSION	EL-4	18/10/63	A0-1-EL-4
4. CEDARS RAPIDS TRANSMISSION COMPANY	EL-10	20/12/63	A0-1-EL-10
5. THE ONTARIO-MINNESOTA PULP AND PAPER COMPANY	EL-21	20/12/63	A0-1-EL-21

* THIS LICENCE WAS VARIED BY ALLOWING FOR TWO ADDITIONAL CLASSES OF INTERRUPTIBLE ENERGY TO BE EXPORTED THEREUNDER WITHOUT IN-
CREASING THE TOTAL QUANTITIES OF EXPORT AUTHORIZED. THIS ENERGY HAS A LOWER RELIABILITY ASSOCIATED WITH IT THAN THE ENERGY
AUTHORIZED FOR EXPORT IN THE EXISTING LICENCE AND, SECONDLY, IS EXPORTED AT A LOWER BORDER PRICE.

** THIS LICENCE WAS AMENDED BY EXTENDING THE TERMINATION DATE TO FEBRUARY 29, 1964, TO PROVIDE THE BOARD WITH SUFFICIENT TIME
TO RESOLVE THE COMPLEXITY OF THE PROBLEMS ASSOCIATED WITH THE NEW APPLICATION.

APPENDIX III

LICENCES AND ORDERS - EXPORTS OF BUTANES BY PIPE LINE - SECTION 82

APPLICANT	DESTINATION	VOLUME (BARRELS)	TERM	HEARD	ISSUED	LICENCE NO.
1. SHELL CANADA LIMITED	SHELL OIL COMPANY, ANACORTES, WASH.	300,000	5/9/62 TO 14/9/63	28/8/62	5/9/62	GL-12
2. TEXACO EXPLORATION COMPANY	TEXACO, INC., ANACORTES, WASH.	495,000	19/10/62 TO 14/9/63	6/9/62	19/10/62	GL-13
3. SHELL CANADA LIMITED	SHELL OIL COMPANY, ANACORTES, WASH.	11,000,000	15/9/63 TO 14/9/68	2/5/63	25/7/63	GL-14
4. TEXACO EXPLORATION COMPANY	TEXACO, INC., ANACORTES, WASH.	864,000	2/10/63 TO 14/9/64	19/7/63	2/10/63	GL-15
5. SOCONY MOBIL OIL OF CANADA LTD.	MOBIL OIL REFINERY, FERNDALE, WASH.	50,000	15/11/63 TO 14/3/64	-	24/10/63	GO-2-63
6. IMPERIAL OIL LIMITED	INTERNATIONAL REFINERIES, INC., WRENSHALL, MINN.	365,000	13/9/63 TO 12/9/64	-	13/9/63	GO-1-63

LICENCED EXPORTS OF BUTANES BY PIPE LINE - VOLUME AND VALUE

	1962		1963	
	BARRELS	\$	BARRELS	\$
1. SHELL CANADA LIMITED	202,836	220,077	353,934	403,542
2. TEXACO EXPLORATION COMPANY	105,827	204,509	150,499	375,905
TOTAL	308,663	424,586	504,443	779,447

APPENDIX IV

EXEMPTION ORDERS PURSUANT TO SECTION 49

GAS PIPE LINES

- (I) TRANS-CANADA PIPE LINES LIMITED, FOR A NEW COMPRESSOR STATION NEAR HAILEYBURY, ONTARIO; TOTAL ADDITIONAL HORSEPOWER 7,700; ORDER NO. XG-1-63, DATED 27 JANUARY 1963; ESTIMATED COST \$2,638,000.
- (II) WESTCOAST TRANSMISSION COMPANY LIMITED, FOR A NEW COMPRESSOR STATION NEAR CHETWYND, B.C.; TOTAL ADDITIONAL HORSEPOWER 8,000 AND MODIFICATION TO EXISTING COMPRESSORS AT THREE POINTS IN B.C. RESULTING IN INCREASED HORSEPOWER OF 4,440; ORDER NO. XG-2-63, DATED 28 MARCH 1963; ESTIMATED COST \$3,681,200.
- (III) TRANS-CANADA PIPE LINES LIMITED, FOR A SECTION OF 34-INCH DIAMETER PIPE LINE, 3,269 FEET LONG, PARALLEL TO ITS EXISTING PIPE LINE, ACROSS THE MINNEDOSA RIVER WATER STORAGE RESERVOIR IN MANITOBA, BEFORE INUNDATION OF FORMERLY DRY LANDS; ORDER NO. XG-3-63, DATED 30 MAY 1963; ESTIMATED COST \$75,000.
- (IV) MID-CONTINENT PIPE LINES LIMITED, FOR A SECTION OF 24-INCH DIAMETER PIPE LINE APPROXIMATELY 4,300 FEET LONG, PARALLEL TO ITS EXISTING PIPE LINE, AT THE ALBERTA-SASKATCHEWAN BORDER; ORDER NO. XG-4-63, DATED 27 JUNE 1963; ESTIMATED COST \$75,000.
- (V) PETROLEUM TRANSMISSION COMPANY, FOR A SECTION OF 6-5/8 INCH DIAMETER PIPE LINE, APPROXIMATELY 940 FEET LONG, AT THE ALBERTA-SASKATCHEWAN BORDER; ORDER NO. XG-5-63, DATED 1 AUGUST 1963; ESTIMATED COST INCLUDED IN 'TOTAL COST' IN NO. 1, PAGE 1, APPENDIX 1.
- (VI) PETROLEUM TRANSMISSION COMPANY, FOR APPROXIMATELY 6.5 MILES OF 6-5/8 INCH DIAMETER PIPE LINE NEAR WINNIPEG, MANITOBA, BEING AN EXTENSION EASTERLY OF NO. 1, PAGE 1, APPENDIX 1; ORDER NO. XG-6-63, DATED 17 OCTOBER 1963; ESTIMATED COST \$155,000.

OIL PIPE LINES

- (I) TRANS-NORTHERN PIPE LINE COMPANY, FOR A NEW COMBINED PUMP AND MEYER STATION NEAR OAKVILLE, ONTARIO; ORDER NO. X0-1-63, DATED 7 MARCH 1963; ADDITIONAL HORSEPOWER 1200; ESTIMATED COST \$108,500.
- (II) WESTSPUR PIPE LINE COMPANY, FOR ADDITIONAL PUMPING CAPACITY AT TWO PUMP STATIONS IN SASKATCHEWAN AND REDUCTION OF PUMPING CAPACITY AT ONE PUMP STATION IN SASKATCHEWAN; ORDER NO. X0-2-63, DATED 28 MARCH 1963; TOTAL ADDITIONAL HORSEPOWER 1500; ESTIMATED COST \$437,000.

APPENDIX IV (CONT'D)

- (III) INTERPROVINCIAL PIPE LINE COMPANY, FOR ADDITIONAL TEMPORARY PUMPING FACILITIES IN TWO PLACES IN ONTARIO; ORDER NO. X0-3-63, DATED 20 JUNE 1963; TOTAL ADDITIONAL HORSEPOWER 1380; ESTIMATED COST \$293,000.
- (IV) WESTSPUR PIPE LINE COMPANY, FOR ADDITIONAL PUMPING CAPACITY AT THREE PUMP STATIONS IN SASKATCHEWAN; ORDER NO. X0-4-63, DATED 27 JUNE 1963; TOTAL ADDITIONAL HORSEPOWER 500; ESTIMATED COST INCLUDED IN ITEM (II).
- (V) TRANS-NORTHERN PIPE LINE COMPANY, FOR CHANGES AND MODIFICATIONS TO THE PIPE LINE IN CONNECTION WITH PARTIAL REVERSAL OF FLOW IN VARIOUS PLACES IN ONTARIO AND QUEBEC; ORDER NO. X0-5-63, DATED 1 AUGUST 1963; ESTIMATED COST \$79,300.
- (VI) WESTSPUR PIPE LINE COMPANY, FOR AN ADDITIONAL 12-1/2 MILES OF 12-3/4 INCH DIAMETER PIPE LINE, VICINITY OF MIDALE, SASKATCHEWAN; ORDER NO. X0-6-63, DATED 29 AUGUST 1963; ESTIMATED COST \$435,000.
- (VII) INTERPROVINCIAL PIPE LINE COMPANY, FOR ADDITIONAL PUMPING CAPACITY AT WESTOVER, ONTARIO; ORDER NO. X0-7-63, DATED 3 OCTOBER 1963; TOTAL ADDITIONAL HORSEPOWER 500; ESTIMATED COST \$204,000.

TABLE I

EXPORTS OF CRUDE OIL AND EQUIVALENT TO THE UNITED STATES
(BARRELS OF 35 IMPERIAL GALLONS)

DESTINATION	1962		1963	
	BARRELS	BARRELS PER DAY	BARRELS	BARRELS PER DAY
<u>U.S. DISTRICTS I - IV</u>				
ASHLAND OIL AND REFINING COMPANY			4,309,524	11,807
BAY REFINING COMPANY	4,540,055	12,438	3,418,447	9,365
CONTINENTAL OIL COMPANY	3,438,033	9,419	3,199,841	8,767
GREAT NORTHERN OIL COMPANY	9,711,339	1,949	9,157,656	25,117
GULF OIL CORPORATION	9,147,616	25,052	1,826,425	5,004
INTERNATIONAL REFINERIES INC.	1,823,963	4,997	5,157,170	14,129
LAKEHEAD PIPELINE INC.	4,763,389	13,050	180,637	495
MURPHY CORPORATION	167,505	459	2,865,537	7,851
NORTHWESTERN REFINING COMPANY	2,619,131	7,176	3,184,445	8,725
OSCEOLA REFINING COMPANY	2,288,025	6,269	470,640	1,289
THE PERMIAN CORPORATION	419,336	1,149	330,510	906
PURE OIL COMPANY	151,161	414	-	-
SHELL CANADA LIMITED	82,798	227	1,432,000	3,923
SOCOBY MOBIL OIL COMPANY	1,457,300	3,993	4,145,247	11,357
SOCOBY MOBIL OIL COMPANY	3,972,544	10,884	519,051	1,422
SOHIO PETROLEUM COMPANY	-	-	4,394,303	12,039
SUN OIL COMPANY LIMITED	4,443,429	12,174	-	-
UNION OIL COMPANY OF CALIFORNIA	43,803	120	27,905	76
OTHERS	29,431	80	15,331	42
	94,480	259	-	-
TOTAL DISTRICTS I - IV	40,193,490	110,119	44,644,669	122,314
<u>U.S. DISTRICT V</u>				
SOCOBY MOBIL OIL COMPANY			12,250,780	33,564
SHELL CANADA LIMITED	11,168,492	30,598	16,211,201	44,414
TEXACO INCORPORATED	17,057,830	46,734	17,505,417	47,960
	17,733,833	49,599	-	-
TOTAL DISTRICT V	45,965,161	125,932	45,967,398	125,938
TOTAL EXPORTS	86,158,651	236,051	90,612,067	248,252

TABLE II

SUBSISTING LICENCES TO EXPORT NATURAL GAS

COMPANY	LICENCE NO.	PORT OF EXIT	TERM OF LICENCE		MAXIMUM VOLUME OF GAS TO BE EXPORTED		
			STARTING (DAY - MONTH - YEAR)	ENDING (DAY - MONTH - YEAR)	PER DAY (MCF)	PER 12 MONTHS (MCF)	DURING TERM OF LICENCE (MMCF)
TRANS-CANADA PIPE LINES LTD.	GL - 1	EMERSON, MANITOBA	11/4/60	14/5/81	204,000	74,000	1,410,000
TRANS-CANADA PIPE LINES LTD.	GL - 2*	NIAGARA FALLS, ONT.	11/4/60	31/12/65	204,000	-	-
ALBERTA AND SOUTHERN GAS CO. LTD.	GL - 3	KINGSGATE, B.C.	31/10/61	31/10/86	458,750	153,270	3,626,000
WESTCOAST TRANSMISSION CO. LTD.	GL - 4	KINGSGATE, B.C.	2/12/61	2/12/81	152,000	51,000	1,020,000
WESTCOAST TRANSMISSION CO. LTD.	PC 1955 - 958	HUNTINGDON, B.C.	3/10/57	3/10/77	-	125,000	-
CANADIAN MONTANA PIPE LINE CO.	GL - 5	CARDSTON, ALTA.	31/10/61	31/10/86	36,000	10,950	273,750
CANADIAN MONTANA PIPE LINE CO.	GL - 8 A.O.1	ADEN, ALTA.	1/9/60	14/5/74	99,460	19,892	220,000
NIAGARA GAS TRANSMISSION	GL - 6	CORNWALL, ONT.	31/5/60	30/6/80	16,710	3,766	73,522
PATRICK T. BUCKLEY	GL - 7	COUTTS, ALTA.	22/6/60	22/6/65	1,300	10	-

* WHEREAS THE OTHER LICENCES HERE LISTED ARE FOR FIRM SALES UNDER A VARIETY OF CONTRACTUAL TERMS, GL - 2 IS FOR SALES INTERRUPTIBLE AT THE OPTION OF THE SELLER. NO GAS HAD BEEN EXPORTED UNDER THIS LICENCE TO THE END OF 1963.

TABLE III

EXPORTS OF NATURAL GAS TO THE UNITED STATES

(THOUSANDS OF CUBIC FEET AT 14.73 P.S.I.A. AND 60° F)

EXPORTER	PORT OF EXIT	1962	1963
CANADIAN MONTANA PIPE LINE CO.	ADEN, ALTA.	17,996,550	16,414,197
CANADIAN MONTANA PIPE LINE CO.	CARWAY, ALTA.	10,069,659	10,837,822
WESTCOAST TRANSMISSION CO. LTD.	HUNTINGDON, B.C.	98,588,432	99,497,894
WESTCOAST TRANSMISSION CO. LTD.	KINGSGATE, B.C.	35,550,168	40,261,562
ALBERTA AND SOUTHERN GAS CO. LTD.	KINGSGATE, B.C.	118,392,795	128,064,939
PATRICK T. BUCKLEY		3,715	3,411
TRANS-CANADA PIPE LINES LTD.	EMERSON, MAN.	61,954,310	62,765,044
NIAGARA GAS TRANSMISSION LTD. (1)	CORNWALL, ONT.	256,687	1,686,767
UNION GAS COMPANY OF CANADA LTD.		-	55,590
TOTAL:		342,812,316	359,607,226

(1) EXPORTED UNDER EMERGENCY ORDER E0-2-63

TABLE IV

IMPORTS OF NATURAL GAS FROM THE UNITED STATES
(THOUSANDS OF CUBIC FEET AT 14.73 P.S.I.A. AND 60 F)⁰

<u>IMPORTER</u>	<u>1962</u>	<u>1963</u>
COUTTS GAS COMPANY, ALBERTA	73,230	77,228
UNION GAS COMPANY OF CANADA, LTD., ONTARIO	5,499,624	5,506,527
UNION GAS COMPANY OF CANADA, LTD., ONTARIO ⁽¹⁾	-	1,157,559
TRANS-CANADA PIPE LINES LTD., ONTARIO ⁽²⁾	1,697	199,474
TOTAL:	<u>5,574,551</u>	<u>6,940,788</u>

(1) IMPORTED UNDER EMERGENCY ORDERS E0-2-63 AND E0-3-63

(2) IMPORTED UNDER EMERGENCY ORDERS E0-2-62 AND E0-1-63

TABLE V

EXPORTS OF ELECTRICAL ENERGY TO THE UNITED STATES - CALENDAR YEAR - 1963

(THOUSANDS OF KILOWATTHOURS)

EXPORT LICENSEE & LICENCE NO.	LICENCE AUTHORIZATION		GROSS ENERGY EXPORTED		REPORTED DOLLAR VALUE OF EXPORT (DUTY EXCLUDED)
	FIRM	INTERRUPTIBLE	FIRM	INTERRUPTIBLE	FIRM
1. MAINE & NEW BRUNSWICK ELECT. POWER CO.	85,000		70,135		483,991.00
2. FRASER COMPANIES	95,000		87,870		834,765.00
3. NEW BRUNSWICK ELECTRIC POWER COMM.	5,000 *	66,000 *	1,589	52,709	16,493.03
	105,000 *		12,216		91,842.40
EL-1	1,000		291		1,181.70
EL-2	3,250		832		3,203.95
EL-3	100		10		336.00
EL-4	10		3		103.10
EL-11	10		1		44.63
EL-12	10		1		
EL-13	10		1		
EL-14	10		1		
EL-15	16,000 **	115,000 **	817	23,213	8,986.56
EL-24		115,000 **		1,822	139,425.89
EL-25					19,329.24
EL-26					
EL-27	105,000 **		4,144		24,530.03
SUB TOTAL: NEW BRUNSWICK			177,910	77,744	526,403.47
4. SOUTHERN CANADA POWER COMPANY		74,300	14,951	18,536	102,281.89
5. CEDARS RAPIDS TRANSMISSION COMPANY	14,300 ***	657,000		233,493	561,353.20
SUB TOTAL: QUEBEC			14,951	252,029	663,645.09
6. HYDRO-ELECTRIC POWER COMM. OF ONTARIO	394,200	5,500,000	347,264	2,332,562	93,251.91
EL-14		105,000		50,353	201,411.60
EL-15					
EL-16					
EL-17	15,000		2,921		
EL-6	307,000	150,000	263,121	24,305	72,914.45
EL-7					
EL-21	66,000		59,284		
EL-22	1,000		555		
EL-8	1,25		24		
EL-5					
SUB TOTAL: ONTARIO			673,169	2,407,220	367,577.96
11. MANITOBA HYDRO (SUB TOTAL: MANITOBA)	18		15		
EL-7					
12. B. C. HYDRO & POWER AUTHORITY	2,000	1,500,000	1,812	19,481	40,894.26
EL-8		10,000			
EL-9					
EL-18					
EL-6	40		26		
EL-9	50		22		
NORTHERN B. C. POWER					
WEST KOOTENAY POWER AND LIGHT					
SUB TOTAL: BRITISH COLUMBIA			1,860	19,481	40,894.26
TOTALS			867,905	2,756,474	1,593,520.78

ELECTRICAL ENERGY - SUPPLEMENTARY STATISTICS
(THOUSANDS OF KILOWATTHOURS)

ELECTRIC ENERGY GENERATION FOR ALL CANADA	1963 -	122,045,919	(PRELIMINARY)
	1963 -	2,879,232	(PRELIMINARY)
	1963 -	124,925,151	
ELECTRIC ENERGY IMPORTATION FROM U.S.A.	1963 -	867,905	(FIRM) - 0.7% OF CANADIAN SUPPLY
	1963 -	2,756,474	(INTERRUPTIBLE) - 2.2% OF CANADIAN SUPPLY
	1963 -		

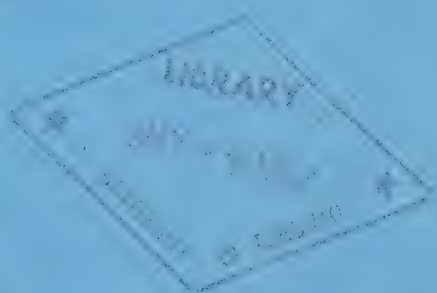
* TERMINATED 17 OCTOBER, 1963
 ** COMMENCED 17 OCTOBER, 1963
 *** 10% TOLERANCE NOT INCLUDED



CANADA

NATIONAL ENERGY BOARD

ANNUAL REPORT



FOR THE YEAR ENDED
31 DECEMBER 1964

NATIONAL ENERGY BOARD

ANNUAL REPORT

FOR THE YEAR ENDED

31 DECEMBER, 1964

NATIONAL ENERGY BOARD
OTTAWA 1, ONT.



OFFICE NATIONAL DE L'ÉNERGIE
OTTAWA 1, ONT.

31 March, 1965.

The Honourable Mitchell Sharp, P.C.,
Minister of Trade and Commerce,
O t t a w a.

Dear Sir:

In accordance with the provisions
of Section 91 of the National Energy Board
Act, Statutes of Canada, 1959, Chapter 46,
I have the pleasure to submit the Annual
Report of the Board for the year ending
31 December, 1964.

Yours faithfully,

A handwritten signature in dark ink, appearing to read "I.N. McKinnon".

I.N. McKinnon,
Chairman

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Exports of Natural Gas to the United States	Table III
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REPORT OF THE NATIONAL ENERGY BOARD FOR THE
YEAR ENDING 31 DECEMBER, 1964

INTRODUCTION

During 1964 the Board completed its fifth full year of operation. Both its regulatory and advisory responsibilities under the National Energy Board Act increased substantially. In 1964 the Board issued 574 certificates, licences and orders. Ten public hearings were held in connection with certificate and licence applications.

Details of the Board's activities are to be found in ensuing sections of this report.

CONSTRUCTION OF FACILITIES

The Board held public hearings during 1964 in regard to an application for a new international power line, applications for new gas pipe lines and for additional gas pipe line facilities, and applications for additional oil pipe line facilities. Certificates authorizing construction pursuant to Section 44 were issued in 1964 with the approval of the Governor in Council, except in three cases where decisions were pending at the end of the year, two of which were issued in January, 1965. In addition the Board issued a certificate for an international power line, application for which had been heard in 1963, and five certificates in respect of existing international power line facilities pursuant to Section 96. These

certificates are summarized in Appendix I, along with one order amending an electrical certificate, two orders amending gas certificates and one miscellaneous order relating to a gas certificate.

Under Section 49 of the National Energy Board Act the Board is empowered to approve the construction of pipe lines or branches or extensions to pipe lines not exceeding 25 miles, and miscellaneous pipe line facilities, by issuing an order exempting such construction from the provisions of Sections 25 to 29 under the Part III certificate proceedings. In the normal course, the Board exercises its discretion in issuing exemption orders under Section 49 where, in its opinion, it would not be inconsistent with the public interest so to do. During 1964 the Board issued 16 exemption orders for gas and oil pipe line facilities. Three exemption orders were issued under Section 49 respecting international power lines, the construction of which was designed to provide border accommodations. Details of these exemption orders may be found in Appendix II.

EXPORTS OF ELECTRICAL POWER AND ENERGY
AND EXPORTS AND IMPORTS OF GAS

With the approval of the Governor in Council the Board during 1964 issued three licences for the export of electrical power following public hearing of the applications.

These licences, along with 15 electrical power exports authorized by order under Section 6A of the Part VI Regulations, are summarized in Appendix III. The Board issued four orders amending electrical licences in 1964.

The Board also issued, with the approval of the Governor in Council, an order amending a gas export licence to increase the authorized export quantity. This order, and four orders authorizing the export of butane by pipe line issued pursuant to Section 16A of the Part VI Regulations, are summarized in Appendix IV.

With the approval of the Governor in Council the Board issued a licence for the import of gas for the first time. Details may be found in Appendix V, along with a summary of two orders issued for the emergency import of gas pursuant to Section 17 of the Part VI Regulations.

MISCELLANEOUS ORDERS

Many of the requirements of the Act relate to pipe line safety. This is particularly true of crossing orders issued pursuant to Sections 76 and 77 and leave to open orders pursuant to Section 38. In 1964 the Board issued 372 crossing orders and 50 leave to open orders. In fulfilment of its obligation to promote the safety of operation of pipe lines, the Board staff carried out field inspections relating to the pressure testing of gas and oil pipe lines, gas compressor and oil pumping facilities and other miscellaneous pipe line installations.

The Board issued 2 orders approving pipe line plans, profiles and books of reference, 29 orders approving compressor and pumping station construction, 7 miscellaneous orders including a number related to the sale, conveyance or lease of parts of pipe lines within the Board's jurisdiction, 42 amending orders, and 3 rescinding orders.

SPECIAL STUDIES AND LIAISON

Pursuant to its obligations under Part II of the Act to review matters relating to energy, and pursuant to its responsibilities under Part VI of the Act relating to exports of gas and electricity, the Board continued in 1964 the preparation of detailed supply and demand forecasts, and the development in co-operation with the Dominion Bureau of Statistics of its statistical records relating to energy.

During 1964 progress was made in improving supply and demand data for petroleum, natural gas, coal and electricity in co-operation with the Inter-departmental Advisory Committee on Energy Statistics, the establishment of which was sponsored by the Board and the Bureau. It is expected that consolidated series of historical data on energy will be published in 1965.

This effort to refine energy statistics is directly related to the Board's work in 1964 on a long-term energy forecast to 1985 which would follow up the short-term energy forecast 1960-1966 prepared by the staff and published by the Board in 1963.

The Board has maintained up-to-date estimates of reserves and producibility for crude oil, natural gas and natural gas liquids. This work has been supported by liaison with interested provincial agencies and trade associations and by field trips. In 1964, the staff of the Board completed a detailed study of gas reserves in British Columbia.

The Board was engaged during 1964 in the work of the Federal-Provincial Working Committee on Long-Distance Transmission and has co-operated with the Atlantic Development Board in the power and energy aspects of the latter's responsibilities.

The Board co-operated in the work of the Canadian Standards Association Committee to establish a Canadian code for the design, construction and operation of oil and gas pipe lines. During 1964 a CSA code for aluminum pressure piping, in the preparation of which the Board assisted, was published. The Board also continued to participate in the work of the CSA Electrical Code Part III Committee.

The Board continued its emergency planning work in the energy field in conjunction with the Emergency Supply Planning Branch of the Department of Defence Production and a number of energy industry advisory committees, and its liaison with international organizations such as the Organization for Economic Co-operation and Development.

To assist it in the analysis of complex energy problems, the Board in 1964 established an Operations Research Branch which will develop mathematical simulations and computer applications related to the energy sector of the economy.

FINANCIAL

Pipe line companies under the Board's jurisdiction file tariffs with the Board in respect of all tolls charged. In the case of gas pipe line companies which own the gas being transported arrangements have been made for the filing of information in regard to gas purchase contracts and copies of all gas sales contracts. The procedure in this regard has been modified so that not only is it simplified from the companies' point of view but it is possible for the Board's information to be maintained on a more current basis. The effects of these tariffs and contracts on the operations of the individual companies have been under continual review, as has the general financial position of the

companies. These reviews are based on financial and other data filed with the Board, supplemented by information obtained in the companies' offices by the Board's Financial Examiners.

NATIONAL OIL POLICY

The National Oil Policy, announced in February, 1961, proposed that production of oil, including natural gas liquids, would reach approximately 800,000 b/d in 1963, compared with an average of 544,000 b/d in 1960. In 1961 average production was 643,000 b/d, in 1962 736,000 b/d and in 1963 production exceeded 800,000 b/d in several months and averaged 787,000 b/d. For 1964, a target of 850,000 b/d was suggested by the Minister of Trade and Commerce.

These increases were to be achieved by increased use of Canadian oil in domestic markets west of the Ottawa Valley and by expansion of export sales, largely in existing markets which could be reached through established pipe lines. The growth in domestic use required substituting in Ontario markets west of the Ottawa Valley, products refined from Canadian crude for those supplied from foreign crude. In Ontario this was to involve displacement of imports of crude and progressive reduction in imports of foreign products and in transfers of products refined from foreign

crudes at Montreal. It also meant increasing refining capacity in Ontario to enable the Ontario market west of the Ottawa Valley to be supplied almost entirely from Canadian crudes. The full impact of the Policy was only felt in 1964, since it was only in late 1963 that the reversal in flow in the pipe line of Trans Northern Pipe Line Company between Montreal and Toronto and a large portion of the Ontario refining capacity required to implement it came into operation.

The National Oil Policy was predicated on a high degree of co-operation between the government and industry and in this liaison the Board has acted as the government's instrument. Through the co-operation of industry, average production in 1964 slightly exceeded the 850,000 b/d target, raising the level more than 50 per cent above that of 1960. Over the period 1960-1964, of the increase in production some 55 per cent is attributable to export gains, some 45 per cent to expansion in the domestic market.

PERSONNEL

As the result of 13 additions and 8 separations, the Board's permanent staff increased from 61 at the end of 1963 to 66 at the end of 1964. In addition, 1 casual employee was on strength at 31 December, 1964, compared to two a year earlier. Authorized establishment on 31 December, 1964, was 78.

TABLES

Appended hereto are the following statistical tables:

Table I	-	Exports of Crude Oil and Equivalent to the United States
Table II	-	Subsisting Licences to Export Natural Gas
Table III	-	Exports of Natural Gas to the United States
Table IV	-	Subsisting Licences to Import Natural Gas
Table V	-	Imports of Natural Gas from the United States
Table VI	-	Exports of Electrical Energy to the United States

NATIONAL ENERGY BOARD

I.N. McKinnon	-	Chairman
R.D. Howland	-	Vice-Chairman
H.L. Briggs	-	Member
D.M. Fraser	-	Member
Maurice Royer	-	Member
Grey Hamilton	-	Secretary

R.A. Stead	-	Assistant Secretary, Administration Branch
T.L. de Fayer	-	Director, Economics Branch
J.G. Stabback	-	Chief Engineer, Engineering Branch
W. Hogben	-	Financial Advisor, Financial Branch
F.H.J. Lamar	-	Counsel, Law Branch
J.G. Debanne	-	Director, Operations Research Branch

APPENDIX I

CERTIFICATES - SECTION 44

APPLICANT	FACILITIES	ESTIMATED COST	HEARD	ISSUED	CERTIFICATE NO.
<u>INTERNATIONAL POWER LINE</u>					
1. BRITISH COLUMBIA HYDRO & POWER AUTHORITY	<p>A 13.4 MILE INTERNATIONAL POWER LINE TO BE DESIGNED AND CONSTRUCTED FOR 500 KV OPERATION BUT TO OPERATE INITIALLY AT 230 KV TO CONNECT THE POWER SYSTEM OF THE APPLICANT AT ITS INGLEDOW SUBSTATION IN THE MUNICIPALITY OF SURREY, BRITISH COLUMBIA, WITH THE POWER SYSTEM OF THE BONNEVILLE POWER ADMINISTRATION AT A POINT ON THE INTERNATIONAL BOUNDARY JUST EAST OF THE POINT WHERE THE PACIFIC HIGHWAY MEETS THE BOUNDARY. THIS SINGLE CIRCUIT LINE WILL BE THE SECOND TO CONNECT THESE TWO SYSTEMS TOGETHER AT THIS POINT AND IS REQUIRED TO STRENGTHEN THE INTERCONNECTION. AT SOME FUTURE DATE IT WILL BE OPERATED AT 500 KV.</p>	\$2,341,000	14 JAN 1964	20 FEB 1964	EC-111-4
2. ONTARIO - MINNESOTA PULP AND PAPER COMPANY LIMITED	<p>A 110 KV INTERNATIONAL POWER LINE TO CONNECT THE POWER SYSTEM OF ONTARIO-MINNESOTA PULP AND PAPER COMPANY IN FORT FRANCES, ONTARIO, WITH THE POWER SYSTEM OF MINNESOTA AND ONTARIO PAPER COMPANY IN INTERNATIONAL FALLS, MINNESOTA, U.S.A.</p>	\$ 42,000	19 NOV 1963	20 FEB 1964	EC-111-5
3. ONTARIO - MINNESOTA PULP AND PAPER COMPANY LIMITED	<p>AMENDING ORDER TO CERTIFICATE EC-111-5 TO VARY THE LENGTH OF THE LINE AND CONDUCTOR SIZE.</p>			2 OCT 1964	A0-1-EC-111-5

APPENDIX I (CONT'D)

CERTIFICATES - SECTION 44

APPLICANT	FACILITIES	ESTIMATED COST	HEARD	ISSUED	CERTIFICATE No.
<u>GAS PIPE LINES</u>					
1. TRANS-CANADA PIPE LINES LIMITED	126.36 MILES OF 34-INCH DIAMETER PIPE IN ALBERTA, SASKATCHEWAN AND MANITOBA, AND 13 ADDITIONAL COMPRESSOR STATIONS IN MANITOBA AND ONTARIO, ALL TO BE CONNECTED TO ITS EXISTING PIPE LINE SYSTEM; TOTAL ADDITIONAL HORSEPOWER: 132,800.	\$ 50,170,000	18 FEB. 1964	28 FEB. 1964	GC-22
2. TRANS-CANADA PIPE LINES LIMITED	ADDITIONS TO CERTIFICATE GC-22, NAMELY: 22.75 MILES OF 34-INCH DIAMETER PIPE IN ALBERTA, SASKATCHEWAN AND MANITOBA, AND ADDITIONS TO TWO EXISTING COMPRESSOR STATIONS, TWO NEW COMPRESSOR STATIONS, AND ADDITIONAL HORSEPOWER AT ONE COMPRESSOR STATION, ALL IN ONTARIO, TO BE CONNECTED TO ITS EXISTING PIPE LINE SYSTEM; TOTAL ADDITIONAL HORSEPOWER: 25,300.	\$ 8,029,000		22 MAY 1964	A0-1-GC-22
3. WESTCOAST TRANSMISSION CO. LTD.	220 MILES OF 30-INCH DIAMETER PIPE LINE, 8.2 MILES OF 16-INCH DIAMETER PIPE LINE, A GAS PROCESSING PLANT AND FIVE NEW COMPRESSOR STATIONS, ALL IN BRITISH COLUMBIA, TO BE CONNECTED TO ITS EXISTING PIPE LINE SYSTEM; TOTAL ADDITIONAL HORSEPOWER: 46,000.	\$ 57,500,000	26,27 & 28 MAY 1964	23 JULY 1964	GC-23
4. WESTCOAST TRANSMISSION CO. LTD.	SUPPLEMENTARY TO CERTIFICATE GC-23, GRANTING LEAVE TO WESTCOAST TRANSMISSION CO. LTD. TO PURCHASE ALL RIGHTS, TITLES AND INTERESTS IN AND TO THE PARTIALLY COMPLETED 30-INCH AND 16-INCH DIAMETER PIPE LINES AND THE GAS PROCESSING PLANT MENTIONED IN ITEM 3, FROM GAS TRUNK LINE OF BRITISH COLUMBIA LIMITED.	INCLUDED IN ITEM 3.		24 JULY 1964	M0-2-64
5. WESTCOAST TRANSMISSION CO. LTD.	AMENDING ORDER TO CERTIFICATE GC-23, GRANTING A TIME LIMIT EXTENSION FOR COMPLETION OF THE FACILITIES REFERRED TO IN SAID CERTIFICATE.	INCLUDED IN ITEM 3.		23 DEC. 1964	A0-1-GC-23
6. CHAMPION PIPE LINE CORPORATION LIMITED	61 MILES OF 8-INCH DIAMETER PIPE FROM A POINT NEAR EARLTON, ONTARIO TO ROUYN-NORANDA, QUEBEC.	\$ 2,215,000	15,16,17 DEC. 1964		PENDING

APPENDIX I (CONT'D)

CERTIFICATES - SECTION 44

APPLICANT	FACILITIES	ESTIMATED COST	HEARD	ISSUED	CERTIFICATE NO.
<u>OIL PIPE LINES</u>					
1. INTERPROVINCIAL PIPE LINE CO.	53 MILES OF 34-INCH DIAMETER PIPE IN FOUR SECTIONS, AND CERTAIN ADDITIONAL PUMPING FACILITIES AT ONE PUMPING STATION, ALL IN MANITOBA, TO BE CONNECTED TO ITS EXISTING PIPE LINE SYSTEM; TOTAL ADDITIONAL HORSEPOWER: 2,500.	\$ 5,884,000	21 JAN 1964	20 FEB 1964	00-17
2. INTERPROVINCIAL PIPE LINE CO.	48.7 MILES OF 34-INCH DIAMETER PIPE IN FOUR SECTIONS, CERTAIN TIE-IN CONNECTIONS AND MODIFICATIONS, CERTAIN ADDITIONAL PUMPING FACILITIES AT TWO PUMPING STATIONS, AND A 150,000 BARREL OIL STORAGE TANK, IN SASKATCHEWAN, MANITOBA AND ONTARIO, ALL TO BE CONNECTED TO ITS EXISTING PIPE LINE SYSTEM; TOTAL ADDITIONAL HORSEPOWER: 5,000	\$ 6,772,000	10 DEC. 1964	13 JAN 1965	00-18 PENDING
3. MONTREAL PIPE LINE CO. LTD.	62.6 MILES OF 24-INCH DIAMETER PIPE IN THREE SECTIONS, ALL IN QUEBEC, TO BE CONNECTED TO ITS EXISTING PIPE LINE SYSTEM.	\$ 7,264,000	9 DEC. 1964.	13 JAN. 1965	00-19

APPENDIX I (CONT'D)

CERTIFICATES - SECTION 96

APPLICANT	FACILITY	ISSUED	CERTIFICATE NO.
INTERNATIONAL POWER LINE			
1. THE SHAWINIGAN WATER AND POWER COMPANY	AN EXISTING 240/120 VOLT, 60 CYCLE, INTERNATIONAL POWER LINE OF NEGLIGIBLE LENGTH CONNECTING THE SYSTEM OF THE APPLICANT IN THE VICINITY OF CHARTIERVILLE, IN THE PROVINCE OF QUEBEC, WITH A UNITED STATES CUSTOMS AND IMMIGRATION STATION AND TWO PRIVATE RESIDENCES IN THE STATE OF NEW HAMPSHIRE, IN THE UNITED STATES OF AMERICA.	21 MAY, 1964	EC-46
2. THE SHAWINIGAN WATER AND POWER COMPANY	AN EXISTING 240/120 VOLT, 60 CYCLE, INTERNATIONAL POWER LINE OF NEGLIGIBLE LENGTH CONNECTING THE SYSTEM OF THE APPLICANT IN THE VICINITY OF ST-JUSTE-DE-BRETENNIERES, IN THE PROVINCE OF QUEBEC, WITH ESTABLISHMENTS OF THE UNITED STATES DEPARTMENT OF FISHERIES AND GAMES, MAINE FOREST SERVICES AND A PRIVATE RESIDENCE, ALL IN THE STATE OF MAINE, IN THE UNITED STATES OF AMERICA.	21 MAY, 1964	EC-47
3. THE SHAWINIGAN WATER AND POWER COMPANY	AN EXISTING 240/120 VOLT, 60 CYCLE, INTERNATIONAL POWER LINE OF NEGLIGIBLE LENGTH CONNECTING THE SYSTEM OF THE APPLICANT IN THE VICINITY OF STE. AURELIE, IN THE PROVINCE OF QUEBEC, WITH AN ESTABLISHMENT OF THE INTERNATIONAL LOGGING CORPORATION IN THE STATE OF MAINE, IN THE UNITED STATES OF AMERICA.	21 MAY, 1964	EC-48
4. THE SHAWINIGAN WATER AND POWER COMPANY	AN EXISTING 240/120 VOLT, 60 CYCLE, INTERNATIONAL POWER LINE OF NEGLIGIBLE LENGTH CONNECTING THE SYSTEM OF THE APPLICANT IN THE VICINITY OF LAC FRONTIERE, IN THE PROVINCE OF QUEBEC, WITH A PRIVATE RESIDENCE IN THE STATE OF MAINE, IN THE UNITED STATES OF AMERICA.	21 MAY, 1964	EC-49
5. THE SHAWINIGAN WATER AND POWER COMPANY	AN EXISTING 240/120 VOLT, 60 CYCLE, INTERNATIONAL POWER LINE OF NEGLIGIBLE LENGTH CONNECTING THE SYSTEM OF THE APPLICANT IN THE VICINITY OF WOBURN, IN THE PROVINCE OF QUEBEC, WITH A NUMBER OF PRIVATE RESIDENCES LOCATED IN THE STATE OF MAINE, IN THE UNITED STATES OF AMERICA.	21 MAY, 1964	EC-50

APPENDIX II

EXEMPTION ORDERS PURSUANT TO SECTION 49, CLASS "B" CONSTRUCTION

GAS PIPE LINES

- 1) TRANS-CANADA PIPE LINES LIMITED, FOR AN ORDER EXEMPTING TWO SECTIONS OF ITS EXISTING PIPE LINE SYSTEM:
 - (i) ONE SECTION IN ALBERTA AND SASKATCHEWAN;
 - (ii) ONE SECTION IN ONTARIO,FROM THE PROVISIONS OF PARAGRAPH (B) OF SUBSECTION (1) OF SECTION 26 OF THE ACT; ORDER NO. XG-1-64, DATED THE 24TH DAY OF JANUARY, 1964.
- 2) NIAGARA GAS TRANSMISSION LIMITED, FOR APPROXIMATELY 1,160 FEET OF 12- $\frac{3}{4}$ INCH DIAMETER PIPE BETWEEN THE CITY OF HULL, QUEBEC, AND THE CITY OF OTTAWA, ONTARIO, (ALONG THE CHAUDIERE BRIDGE); ESTIMATED COST: \$46,700.00. ORDER NO. XG-2-64, DATED THE 26TH DAY OF MARCH, 1964.
- 3) TRANS-CANADA PIPE LINES LIMITED, FOR AN ORDER EXEMPTING SIX SECTIONS OF ITS EXISTING PIPE LINE SYSTEM, BEING SECTIONS CONNECTING ITS MAIN LINE AND SIX METER STATIONS AT VARIOUS LOCATIONS IN MANITOBA AND ONTARIO, FROM THE PROVISIONS OF PARAGRAPH (B) OF SUBSECTION (1) OF SECTION 26 OF THE ACT; ORDER NO. XG-3-64, DATED THE 29TH DAY OF OCTOBER, 1964.
- 4) TRANS-CANADA PIPE LINES LIMITED, FOR APPROXIMATELY 10,700 FEET OF 2-INCH DIAMETER PIPE AND WORKS CONNECTED THEREWITH, NEAR CARMAN, IN MANITOBA; ESTIMATED COST: \$30,000.00. ORDER NO. XG-4-64, DATED THE 29TH DAY OF OCTOBER, 1964.
- 5) SASKATCHEWAN POWER CORPORATION, FOR APPROXIMATELY 11 $\frac{1}{2}$ MILES OF 8-INCH DIAMETER PIPE, INCLUDING A METER RUN AND OTHER WORKS CONNECTED THEREWITH; SOUTH AND EAST OF LOVERNA, SASKATCHEWAN; ESTIMATED COST: \$238,800.00. ORDER NO. XG-5-64, DATED THE 13TH DAY OF NOVEMBER, 1964.

OIL PIPE LINES

- 1) WESTSPUR PIPE LINE COMPANY, FOR A 55,000 BARREL OIL STORAGE TANK AT MIDALE, SASKATCHEWAN; ESTIMATED COST: \$120,000.00. ORDER NO. X0-1-64, DATED THE 9TH DAY OF APRIL, 1964.
- 2) INTERPROVINCIAL PIPE LINE COMPANY, FOR PERMANENT PUMPING FACILITIES AT KEYSER AND WOLVERTON, ONTARIO; TOTAL HORSEPOWER 10,000; ESTIMATED COST: \$413,000.00. ORDER NO. X0-2-64, DATED THE 21ST DAY OF MAY, 1964.
- 3) INTERPROVINCIAL PIPE LINE COMPANY, FOR CERTAIN CHANGES IN ITS EXISTING PIPE LINE SYSTEM TO PERMIT THE USE OF CERTAIN EXISTING NON-UTILIZED SECTIONS OF ITS 24-INCH DIAMETER PIPE LINE IN MANITOBA; ESTIMATED COST: \$171,000.00. ORDER NO. X0-3-64, DATED THE 11TH DAY OF AUGUST, 1964.

APPENDIX II (CONT'D)

EXEMPTION ORDERS PURSUANT TO SECTION 49,

CLASS "C" CONSTRUCTION

GAS PIPE LINES

- 1) WESTCOAST TRANSMISSION COMPANY LIMITED, FOR CERTAIN MISCELLANEOUS FACILITIES TO BE ADDED TO ITS PIPE LINE SYSTEM IN BRITISH COLUMBIA; ESTIMATED COST: \$267,760.00. ORDER NO. XGM-1-64, DATED THE 26TH DAY OF MARCH, 1964.
- 2) TRANS-CANADA PIPE LINES LIMITED, FOR CERTAIN MISCELLANEOUS FACILITIES TO BE ADDED TO ITS PIPE LINE SYSTEM IN ALBERTA, SASKATCHEWAN, MANITOBA, ONTARIO AND QUEBEC; ESTIMATED COST: \$5,141,660.00. ORDER NO. XGM-2-64, DATED THE 9TH DAY OF APRIL, 1964.
- 3) ALBERTA NATURAL GAS COMPANY, FOR CERTAIN MISCELLANEOUS FACILITIES TO BE ADDED TO ITS PIPE LINE SYSTEM IN BRITISH COLUMBIA; ESTIMATED COST: \$82,960.00. ORDER NO. XGM-3-64, DATED THE 14TH DAY OF MAY, 1964.

OIL PIPE LINES

- 1) MONTREAL PIPE LINE COMPANY LIMITED, FOR CERTAIN MISCELLANEOUS FACILITIES TO BE ADDED TO ITS PIPE LINE SYSTEM IN QUEBEC; ESTIMATED COST: \$98,550.00. ORDER NO. XOM-1-64, DATED THE 12TH DAY OF MARCH, 1964.
- 2) TRANS-NORTHERN PIPE LINE COMPANY, FOR CERTAIN MISCELLANEOUS FACILITIES TO BE ADDED TO ITS PIPE LINE SYSTEM IN QUEBEC AND ONTARIO; ESTIMATED COST: \$261,500.00. ORDER NO. XOM-2-64, DATED THE 2ND DAY OF APRIL, 1964.
- 3) INTERPROVINCIAL PIPE LINE COMPANY, FOR CERTAIN MISCELLANEOUS FACILITIES TO BE ADDED TO ITS PIPE LINE SYSTEM IN ALBERTA, SASKATCHEWAN, MANITOBA AND ONTARIO; ESTIMATED COST: \$459,000.00. ORDER NO. XOM-3-64, DATED THE 9TH DAY OF APRIL, 1964.
- 4) WESTSPUR PIPE LINE COMPANY, FOR CERTAIN MISCELLANEOUS FACILITIES TO BE ADDED TO ITS PIPE LINE SYSTEM IN SASKATCHEWAN AND MANITOBA; ESTIMATED COST: \$331,000.00. ORDER NO. XOM-4-64, DATED THE 9TH DAY OF APRIL, 1964.
- 5) TRANS MOUNTAIN OIL PIPE LINE COMPANY, FOR CERTAIN MISCELLANEOUS FACILITIES TO BE ADDED TO ITS PIPE LINE SYSTEM IN ALBERTA AND BRITISH COLUMBIA; ESTIMATED COST: \$897,580.00. ORDER NO. XOM-5-64, DATED THE 7TH DAY OF MAY, 1964.

APPENDIX II (CONT'D)

EXEMPTION ORDERS PURSUANT TO SECTION 49

INTERNATIONAL POWER LINES

- (1) THE SHAWINIGAN WATER AND POWER COMPANY, FOR A NEW INTERNATIONAL POWER LINE TO OPERATE AT 7,200 VOLTS, 60 CYCLES, AND CONNECT THE APPLICANT'S SYSTEM IN THE VICINITY OF ST-JUSTE-DE-BRETENNIERES, MONTMAGNY COUNTY, IN THE PROVINCE OF QUEBEC, WITH A COMMERCIAL CUSTOMER, OXFORD PAPER COMPANY OF MAINE, AS A MATTER OF BORDER CONVENIENCE. ORDER NO. XE-1-64, DATED THE 23RD DAY OF APRIL, 1964.
- (2) THE SHAWINIGAN WATER AND POWER COMPANY, FOR A NEW INTERNATIONAL POWER LINE TO OPERATE AT 240/120 VOLTS, 60 CYCLES, AND CONNECT THE APPLICANT'S SYSTEM IN THE VICINITY OF ST. CYPRIEN, DORCHESTER COUNTY, IN THE PROVINCE OF QUEBEC, WITH A COMMERCIAL CUSTOMER, MAINE STATE FOREST SERVICES, IN THE STATE OF MAINE, AS A MATTER OF BORDER CONVENIENCE. ORDER NO. XE-2-64, DATED THE 21ST DAY OF MAY, 1964.
- (3) THE SHAWINIGAN WATER AND POWER COMPANY, FOR A NEW INTERNATIONAL POWER LINE TO OPERATE AT 240/120 VOLTS, 60 CYCLES, AND CONNECT THE APPLICANT'S SYSTEM IN THE VICINITY OF ST-THEOPHILE, BEAUCÉ COUNTY, IN THE PROVINCE OF QUEBEC, WITH A UNITED STATES BORDER STATION IN THE STATE OF MAINE, AS A MATTER OF BORDER CONVENIENCE. ORDER NO. XE-3-64, DATED THE 2ND DAY OF NOVEMBER, 1964.

APPENDIX III

LICENCES - EXPORTS OF ELECTRICAL POWER AND ENERGY - SECTION 82

APPLICANT	CLASS	KILOWATTS (THOUSANDS)	ANNUAL KILOWATTHOURS (MILLIONS)	TERM	HEARD	ISSUED	LICENCE NUMBER
1. CEDARS RAPIDS TRANSMISSION COMPANY	INTERRUPTIBLE	-	1.2	1/1/65 TO 31/12/67	4/11/64	11/12/64	EL-29
2. SOUTHERN CANADA POWER COMPANY	INTERRUPTIBLE	-	61.25	1/1/65 TO 31/12/66	26/11/64	11/12/64	EL-30
3. SOUTHERN CANADA POWER COMPANY	FIRM	5.4 TO 5.5	19.25 TO 19.85	1/1/65 TO 31/12/66	26/11/64	11/12/64	EL-31

ORDERS - EXPORTS OF ELECTRICAL POWER AND ENERGY PART VI REGULATIONS SECTION 6A

APPLICANT	CLASS	KILOWATTS	ANNUAL KILOWATTHOURS (MILLIONS)	TERM FROM DATE OF ISSUE - MONTHS	ISSUED	ORDER NUMBER
1. THE SHAWINIGAN WATER & POWER COMPANY	FIRM	15	0.100	12	23/4/64	EL0-19
2. THE SHAWINIGAN WATER & POWER COMPANY	FIRM	9	0.020	12	21/5/64	EL0-20
3. THE SHAWINIGAN WATER & POWER COMPANY	FIRM	8	0.017	12	21/5/64	EL0-21
4. THE SHAWINIGAN WATER & POWER COMPANY	FIRM	30	0.052	12	21/5/64	EL0-22
5. THE SHAWINIGAN WATER & POWER COMPANY	FIRM	3	0.003	12	21/5/64	EL0-23
6. THE SHAWINIGAN WATER & POWER COMPANY	FIRM	17	0.060	12	21/5/64	EL0-24
7. THE SHAWINIGAN WATER & POWER COMPANY	FIRM	2	0.0007	12	2/5/64	EL0-25
8. NEW BRUNSWICK ELECTRIC POWER COMMISSION	FIRM	100	0.100	12	2/10/64	EL0-26
9. NEW BRUNSWICK ELECTRIC POWER COMMISSION	FIRM	12	0.010	12	2/10/64	EL0-27

APPENDIX III - (CONT'D)

ORDERS - EXPORTS OF ELECTRICAL POWER AND ENERGY PART VI REGULATIONS SECTION 6A

APPLICANT	CLASS	KILOWATTS	ANNUAL KILOWATTHOURS (MILLIONS)	TERM FROM DATE OF ISSUE - MONTHS	ISSUED	ORDER NUMBER
10. NEW BRUNSWICK ELECTRIC POWER COMMISSION	FIRM	25	0.010	12	2/10/64	EL0-28
11. THE CANADIAN TRANSIT COMPANY	FIRM	100	0.025	10	2/10/64	EL0-29
12. THE SHAWINIGAN WATER & POWER COMPANY	FIRM	25	0.070	12	2/11/64	EL0-30
13. THE DETROIT & WINDSOR SUBWAY CO.	FIRM	300	1.0	12	10/12/64	EL0-31
14. WEST KOOTENAY POWER AND LIGHT	FIRM	10	0.050	12	18/12/64	EL0-32
15. BRITISH COLUMBIA HYDRO & POWER AUTHORITY	FIRM	20	0.080	12	30/12/64	EL0-33

ORDERS AMENDING EXISTING ELECTRIC POWER EXPORT LICENCES ISSUED BY THE BOARD

APPLICANT	ASSOCIATED LICENCE	DATE OF AMENDMENT	AMENDMENT ORDER NUMBER
1. BRITISH COLUMBIA HYDRO & POWER AUTHORITY	EL-9	21/2/64	A0-1-EL-9
2. CEDARS RAPIDS TRANSMISSION COMPANY	EL-10	14/5/64	A0-2-EL-10
3. CEDARS RAPIDS TRANSMISSION COMPANY	EL-10	4/9/64	A0-3-EL-10
4. BRITISH COLUMBIA HYDRO & POWER AUTHORITY	EL-18	21/2/64	A0-1-EL-18

APPENDIX IV

ORDERS AMENDING EXISTING GAS EXPORT LICENCES ISSUED BY THE BOARD

APPLICANT	DESTINATION	MAXIMUM EXPORT VOLUMES			TERM	ISSUED	LICENCE NUMBER
		DAILY (MCF)	ANNUAL (MMCF)	TERM (MMCF)			
1. TRANS-CANADA PIPE LINES LIMITED.	MIDWESTERN GAS TRANSMISSION COMPANY	223,000	74,000	1,410,000	11/4/60 14/5/81	14/8/64	A0-1-GL-1

- THIS WAS AN ORDER PURSUANT TO SECTION 17 TO INCREASE THE MAXIMUM DAILY VOLUME AUTHORIZED UNDER LICENCE GL-1 FROM 204,000 MCF TO 223,000 MCF.

ORDERS - EXPORTS OF BUTANES BY PIPELINE - PART VI REGULATIONS - SECTION 16A

APPLICANT	DESTINATION	VOLUME (BBL)	TERM	ISSUED	ORDER NO.
1. HUDSONS BAY OIL & GAS LTD.	CONTINENTAL OIL CO. REFINERY BILLINGS, MONTANA	182,500	1/ 3/64 28/ 2/65	3/ 3/64	60-1-64
2. TEXACO EXPLORATION CO.	TEXACO INC. ANACORTES, WASHINGTON	365,000	15/ 9/64 14/ 9/65	30/ 7/64	60-2-64
3. IMPERIAL OIL LTD.	INTERNATIONAL REFINERIES INC. WRENSHALL, MINNESOTA	365,000	13/ 9/64 12/ 9/65	3/ 9/64	60-3-64
4. SOCONY MOBIL OIL CANADA LTD.	MOBIL OIL REFINERY FERNDALE, WASHINGTON	60,000	15/11/64 31/ 3/65	12/11/64	60-4-64

APPENDIX V

LICENCES - IMPORT OF GAS - SECTION 82

MAXIMUM IMPORT VOLUMES•							
APPLICANT	FROM	DAILY (MCF)	ANNUAL* (MMCF)	TERM (MMCF)	HEARD	ISSUED	LICENCE NO.
1. UNION GAS COMPANY OF CANADA LIMITED	PANHANDLE EASTERN PIPE LINE COMPANY	55,000	15,500	170,000	1/7/65 5/11/76	15/9/64 11/12/64	GLI-1

- LESS IN EACH OF THE YEARS 1965, 1966, AND 1967 QUANTITIES IMPORTED PURSUANT TO A PREVIOUS LICENCE DATED 17 NOVEMBER, 1956.

ORDERS - IMPORT OF GAS - PART VI REGULATIONS - SECTION 17

APPLICANT	FROM	MAXIMUM IMPORT VOLUMES		TERM	ISSUED	ORDER NO.
		PEAK DAY (MCFD)	TOTAL (BILLION CUBIC FEET)			
1. TRANS-CANADA PIPE LINES LIMITED	TENNESSEE GAS TRANSMISSION COMPANY	140,000	2.500	15/ 4/64 31/ 5/64	13/4/64	E0-1-64
2. TRANS-CANADA PIPE LINES LIMITED	TENNESSEE GAS TRANSMISSION COMPANY	150,000	3.450	17/12/64 8/ 1/65	17/12/64 23/12/64	E0-2-64 A0-1-E0-2-64

TABLE 1

EXPORTS OF CRUDE OIL AND EQUIVALENT TO THE UNITED STATES
(BARRELS OF 35 CANADIAN GALLONS)

DESTINATION	1963		1964	
	BARRELS	BARRELS PER DAY	BARRELS	BARRELS PER DAY
<u>U.S. DISTRICTS I-IV</u>				
ASHLAND OIL AND REFINING CO.	4,309,524	11,807	4,210,878	11,505
BAY CITY, MICHIGAN	3,418,447	9,365	3,710,112	10,137
CONTINENTAL OIL CO.	3,199,841	8,767	4,259,443	11,638
GREAT NORTHERN OIL CO.	9,167,656	25,117	12,030,385	32,870
GULF OIL CORP.	1,826,425	5,004	1,835,783	5,016
INTERNATIONAL REFINERIES INC.	5,157,170	14,129	4,850,361	13,252
LAKEHEAD PIPELINE CO. INC.	180,637	495	178,133	487
LEGNARD REFINERIES, INC.	-	-	242,248	662
MURPHY CORP.	2,865,537	7,851	4,655,318	12,719
NORTHWESTERN REFINING CO.	3,184,445	8,725	4,284,506	11,707
OSCEOLA REFINING CO.	470,640	1,289	4,735,476	2,012
THE PERIAN CORP.	330,510	905	105,473	291
SHELL OIL COMPANY	1,432,000	3,923	224,000	612
SOCONY MOBIL OIL CO.	4,145,247	11,357	3,977,015	10,866
SOCONY MOBIL OIL CO.	519,051	1,422	334,190	913
SOHIO PETROLEUM CO.	4,394,303	12,039	4,359,124	11,910
UNION OIL CO. OF CALIFORNIA	27,905	76	27,455	75
OTHERS	15,331	42	33,638	92
	44,644,669	122,314	50,055,638	136,764
<u>U.S. DISTRICT V</u>				
SOCONY MOBIL OIL CO.	12,250,780	33,564	12,185,846	33,255
SHELL OIL CO.	16,211,201	44,414	21,029,550	57,453
TEXACO INC.	17,505,417	47,960	18,439,742	50,435
	45,967,398	125,938	51,675,233	141,189
TOTAL DISTRICT V	90,612,067	248,252	101,730,876	277,953
TOTAL EXPORTS				

TOTAL DISTRICTS I - IV

U.S. DISTRICT V

FERMDALE, WASHINGTON
ANACORTES, WASHINGTON
ANACORTES, WASHINGTON

TOTAL DISTRICT V

TOTAL EXPORTS

TABLE II

SUBSISTING LICENCES TO EXPORT NATURAL GAS

COMPANY	LICENCE NO.	POINT OF EXIT	TERM OF LICENCE	MAXIMUM DAILY (Mcf)	EXPORT ANNUAL (MMcf)	VOLUMES TERM (MMcf)
TRANS-CANADA PIPE LINES LTD.	GL-1 (A0-1)	EMERSON, MAN.	11/ 4/60	223,000	74,000	1,410,000
TRANS-CANADA PIPE LINES LTD.	GL-2	NIAGARA FALLS, ONT.	11/ 4/60	204,000	-	-
ALBERTA & SOUTHERN GAS CO. LTD.	GL-3	KINGSGATE, B.C.	31/10/61	458,750	153,270	3,826,000
WESTCOAST TRANSMISSION CO. LTD.	GL-4	KINGSGATE, B.C.	2/12/61	152,000	51,000	1,020,000
WESTCOAST TRANSMISSION CO. LTD.	PC1955-958	HUNTINGDON, B.C.	3/10/57	-	125,000	-
CANADIAN MONTANA PIPELINE CO.	GL-5	CARDSTON, ALTA.	31/10/61	36,000	10,950	273,750
CANADIAN MONTANA PIPELINE CO.	GL-8 (A0-1)	ADEN, ALTA.	1/ 9/60	99,460	19,892	220,000
NIAGARA GAS TRANSMISSION	GL-6	CORNWALL, ONT.	31/ 5/60	16,710	3,766	73,522
PATRICK T. BUCKLEY	GL-7	COUTTS, ALTA.	22/ 6/60	1,300	10	-

* WHEREAS THE OTHER LICENCES HERE LISTED ARE FOR FIRM SALES UNDER A VARIETY OF CONTRACTUAL TERMS-GL-2 IS FOR SALES INTERRUPTIBLE AT THE OPTION OF THE SELLER.

TABLE III

EXPORTS OF NATURAL GAS TO THE UNITED STATES

(THOUSANDS OF CUBIC FEET AT 14.73 P.S.I.A. AND 60°F.)

<u>EXPORTER</u>	<u>POINT OF EXIT</u>	<u>1963</u>	<u>1964</u>
CANADIAN MONTANA PIPE LINE CO.	ADEN, ALTA.	16,414,197	17,141,816
CANADIAN MONTANA PIPE LINE CO.	CARDSTON, ALTA.	10,837,822	10,736,408
WESTCOAST TRANSMISSION CO. LTD.	HUNTINGDON, B.C.	99,497,894	101,339,806
WESTCOAST TRANSMISSION CO. LTD.	KINGSGATE, B.C.	40,261,562	43,507,378
ALBERTA AND SOUTHERN GAS CO. LTD.	KINGSGATE, B.C.	128,064,939	146,067,886
PATRICK T. BUCKLEY	COUTTS, ALTA.	3,411	2,263
TRANS-CANADA PIPE LINES LTD.	EMERSON, MAN.	62,785,044	71,365,685
NIAGARA GAS TRANSMISSION LTD.	CORNWALL, ONT.	1,686,767	2,078,187
UNION GAS CO. OF CANADA LTD.	OJIBWAY, ONT.	55,590 (1)	-
T O T A L		359,607,226	392,239,429

(1) EXPORTED UNDER EMERGENCY ORDER EO-2-63

TABLE III (CONT'D)

LICENSED EXPORTS OF BUTANES BY PIPE LINE - VOLUME AND VALUE

	1963		1964	
	BARRELS	\$	BARRELS	\$
1. SHELL CANADA LIMITED	353,934	403,542	1,375,505	1,664,361
2. TEXACO EXPLORATION COMPANY	150,499	375,905	207,559	502,869
3. SOCONY MOBIL OIL OF CANADA, LTD.	-	-	30,280	49,850
4. IMPERIAL OIL LIMITED	-	-	29,845	38,325
5. HUDSON'S BAY OIL AND GAS CO. LTD.	-	-	132,615	134,230
TOTAL	504,433	779,447	1,775,804	2,389,635

TABLE IV

SUBSISTING LICENCES TO IMPORT NATURAL GAS

PART VI - SECTION 82

COMPANY	LICENCE NO.	PORT OF ENTRY	TERM OF LICENCE	MAXIMUM DAILY (MCF)	IMPORT ANNUAL (MMCF)	VOLUMES (MMCF)
1. UNION GAS COMPANY OF CANADA LTD.	PC1956-1848	OJIBWAY, ONTARIO	17/12/56 31/ 3/70	-	5,500	-
2. UNION GAS COMPANY OF CANADA LTD.*	GLI-1	OJIBWAY, ONTARIO	1/ 7/65 5/11/76	55,000	15,500	170,000
3. COUTTS GAS COMPANY LIMITED	PC1955-1742	COUTTS, ALBERTA	18/11/55 31/ 3/75	-	120	-

* THE QUANTITY OF GAS PERMITTED TO BE IMPORTED HEREUNDER IN EACH OF THE YEARS 1965, 1966 AND 1967 SHALL BE REDUCED BY THOSE QUANTITIES OF GAS IMPORTED UNDER A CONTRACT DATED NOV. 25, 1944 AS AUTHORIZED BY PC1956-1848.

TABLE V

IMPORTS OF NATURAL GAS FROM THE UNITED STATES

(THOUSANDS OF CUBIC FEET AT 14.73 P.S.I.A. AND 60°F.)

<u>IMPORTER</u>	<u>POINT OF ENTRY</u>	<u>1963</u>	<u>1964</u>
COUTTS GAS CO. OF CANADA, LTD.	COUTTS, ALTA.	77,228	90,858
UNION GAS CO. OF CANADA, LTD.	OJIBWAY, ONT.	5,410,713	5,404,391
UNION GAS CO. OF CANADA, LTD.	OJIBWAY, ONT.	1,137,418 (1)	
TRANS-CANADA PIPE LINES LTD.	NIAGARA FALLS, ONT.	199,474 (2)	4,146,436 (3)
T O T A L		6,824,883	9,641,684

(1) IMPORTED UNDER EMERGENCY ORDERS EO-2-63 AND EO-3-63.

(2) IMPORTED UNDER EMERGENCY ORDERS EO-2-62 AND EO-1-63.

(3) IMPORTED UNDER EMERGENCY ORDERS EO-1-64 AND EO-2-64 AS AMENDED BY AO-1-2-64.

TABLE VI

EXPORTS OF ELECTRICAL ENERGY TO THE UNITED STATES - CALENDAR YEAR - 1964

(THOUSANDS OF KILOWATTHOURS)

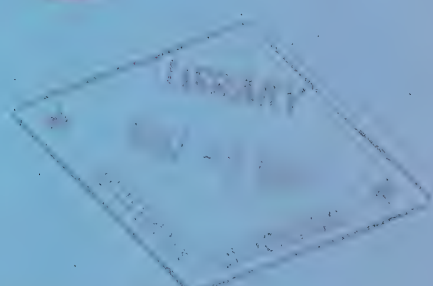
EXPORT LICENSEE & LICENCE NO.	LICENCE AUTHORIZATION		GROSS ENERGY EXPORTED		REPORTED DOLLAR VALUE OF EXPORT (DUTY EXCLUDED)	INTERRUPTIBLE
	FIRM	INTERRUPTIBLE	FIRM	INTERRUPTIBLE		
1. MAINE & NEW BRUNSWICK ELECT. POWER CO.	85,000		50,692		397,146.00	
2. FRASER COMPANIES	100,000		91,530		869,535.00	
3. NEW BRUNSWICK ELECTRIC POWER COMM.	16,000	115,000	2,253	59,247	24,494.62	401,950.69
		115,000		23,076		244,084.65
	105,000		18,351		124,160.44	
EL-22	4,250		2,570		2,208.56	
EL-24	120		68		1,417,544.62	
EL-25			165,464	82,323		646,035.34
EL-26					1,176.92	
EL-27			82			
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CANADA

NATIONAL ENERGY BOARD

ANNUAL REPORT



FOR THE YEAR ENDED
31 DECEMBER 1965

NATIONAL ENERGY BOARD

ANNUAL REPORT

FOR THE YEAR ENDED

31 DECEMBER 1965

NATIONAL ENERGY BOARD
OTTAWA 1, ONT.



OFFICE NATIONAL DE L'ÉNERGIE
OTTAWA 1, ONT.

FILE NO.
DOSSIER

7-2-8

31 March 1966

The Honourable Jean-Luc Pépin, P.C.,
Minister of Mines and Technical Surveys,
O t t a w a.

Dear Sir:

In accordance with the provisions
of Section 91 of the National Energy Board
Act, Statutes of Canada, 1959, Chapter 46,
I have the pleasure to submit the Annual
Report of the Board for the year ending
31 December 1965.

Yours faithfully,

A handwritten signature in dark ink, appearing to read "I.N. McKinnon".

I.N. McKinnon,
Chairman



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NATIONAL ENERGY BOARD

I.N. McKinnon	-	Chairman
R.D. Howland	-	Vice-Chairman
H.L. Briggs	-	Member
D.M. Fraser	-	Member
Maurice Royer	-	Member

R.A. Stead	-	Acting Secretary, Administration Branch
T.L. de Fayer	-	Director, Economics Branch
J.G. Stabback	-	Chief Engineer, Engineering Branch
W. Hogben	-	Financial Advisor, Financial Branch
F.H.J. Lamar	-	Counsel, Law Branch
J.G. Debanné	-	Director, Operations Research Branch

REPORT OF THE NATIONAL ENERGY BOARD FOR THE
YEAR ENDING 31 DECEMBER 1965

INTRODUCTION

This is the seventh annual report of the Board.

During 1965, the demands made upon the Board in respect of its regulatory and advisory responsibilities under the National Energy Board Act continued to increase. The number of public hearings increased to 11 from ten in 1964 and 17 certificates and licences were issued during 1965 as a consequence of these hearings. The total number of certificates, licences and orders issued in 1965 was 629 which compares with 574 issued in 1964.

The ensuing sections of this report describe the activities of the Board during 1965 in more detail.

AUTHORIZATION OF EXPORTS AND IMPORTS OF GAS
AND EXPORTS OF ELECTRICAL POWER

During 1965, with the approval of the Governor in Council, the Board issued four licences for the export of natural gas, two licences for the import of natural gas and five licences for the export of electric power and energy.

The four gas export licences issued in 1965 bring the total number of subsisting licences to 13 and increase the amount of natural gas authorized for export from a maximum of 1,385,000 Mcf per day to 1,797,000 Mcf per day.

The Board also issued, with the approval of the Governor in Council, five orders amending gas export licences and two orders amending electric power export licences.

Under Section 6A and Section 16A of the Regulations made pursuant to Part VI of the Act, the Board issued, respectively, 15 orders authorizing the export of electric power and five orders authorizing the export of butanes by pipe line. The licences and orders referred to in this section of the report are summarized in Appendices III, IV and V.

AUTHORIZATION OF CONSTRUCTION OF PIPE LINES
AND INTERNATIONAL POWER LINES

The Board held public hearings during 1965 regarding applications for a new gas pipe line, for additional gas pipe line facilities, for additional oil pipe line facilities and for a pipe line to transport liquid petroleum products. In connection with these, six Certificates of Public Convenience and Necessity were issued pursuant to Section 44 of the Act with the approval of the Governor in Council. A decision on one application was pending at the end of the year. (This application was subsequently dismissed.) These Certificates and amending Orders granting variations to previously approved facilities or extensions of construction time limits are summarized in Appendix I.

Pursuant to Section 49 of the Act, the Board is empowered to approve the construction of pipe lines or branches or extensions to pipe lines not exceeding 25 miles in length and to approve other miscellaneous pipe line facilities by issuing orders exempting such construction from any or all of the provisions of Sections 25 to 29 of the Act. The Board issues exemption orders under Section 49 where, in its opinion, it would not be inconsistent with the public interest to do so. During 1965, 28 such exemption

orders were issued in regard to gas and oil pipe lines. Details of these exemption orders may be found in Appendix II.

One Certificate was issued with the approval of the Governor in Council for construction of a new international power line. A previously issued Certificate was amended by authorizing the transfer of ownership of the line. Details are in Appendix I.

MISCELLANEOUS REGULATORY ORDERS

The Board is charged with provision for the protection of property and the safety of the public and pipe line employees in the operation of a pipe line. This relates particularly to crossings involving pipe lines and roads, sewers or other utility services. Also, a pipe line may not be opened for transmission of gas or oil except by order of the Board. Crossing orders are issued pursuant to Sections 76 and 77 and leave-to-open orders pursuant to Section 38 of the Act. In 1965, the Board issued 426 crossing orders and 39 leave-to-open orders. In further fulfilment of its obligation to promote the safety of operation of pipe lines, the Board's staff carried out numerous field inspections relating to the pressure testing of new gas and oil pipe lines, and the retesting of existing pipe lines, gas

compression and oil pumping facilities and other miscellaneous pipe line installations.

The Board issued 14 orders approving plans, profiles and books of reference for new pipe lines and approving exemption from submission of plans, profiles and books of reference for relocations of existing pipe lines. Two permits were issued allowing correction of plans, profiles and books of reference already approved and on deposit in respective Land Registry Offices. The Board also issued 16 orders approving compression and pumping station construction and 19 miscellaneous orders, including a number related to the approval of increased maximum operating pressures for existing oil pipe lines and to the sale, conveyance or lease of parts of pipe lines within the Board's jurisdiction. The Board amended 40 existing orders and 13 were rescinded.

PIPE LINE LEAKS, BREAKS AND MALFUNCTIONS

The following is a summary of leaks, breaks, malfunctions and other pipe line incidents reported to the Board during 1965 by companies under the jurisdiction of the National Energy Board Act:

<u>Origin of Reported Incidents</u>	<u>No. of Incidents</u>	<u>Remarks</u>
Corrosion	9	Seven occurred in sections of pipe having inadequate cathodic protection and/or coating. Two occurred in highly corrosive areas.
Defective pipe	37	Thirty-six small leaks resulting from minor defects in the longitudinal seam of pipe. One occurred because of defective pipe metal.
Defective equipment	14	These were mainly caused by blown gaskets, leaks in packing material, etc.
Defects in field welds	9	
Defects due to construction methods	4	All resulted from gouges and dents in pipe metal occurring during construction.
Caused by other parties	2	Caused by construction machinery damaging pipe lines. In both cases, the pipe line companies were unaware of equipment working in the area until the lines were damaged.
Miscellaneous and unknown	1	Cause of break not yet known - presence of water and ice is preventing investigation until Spring break-up.
TOTAL	<u>76</u>	

Injuries to personnel - 2 men sustained minor burns during two separate incidents.

FINANCIAL REGULATIONS

The financial aspects of operations of pipe line companies under the Board's jurisdiction receive continual scrutiny and the Board is accumulating knowledge of the financial situations of these companies. Information received through periodical returns is supplemented by that received through visits to the companies' offices by the Board's financial examiners.

Although no requests for public hearings on rate matters have been received, nor has the Board considered it necessary to instigate such a hearing on its own initiative, steps are being taken to establish the appropriate treatment, for rate making purposes, of some of the more controversial matters ordinarily at issue in a rate proceeding. These include the accounting treatments of depreciation and income taxes and it is believed that clarification at this time will simplify and shorten the proceedings in the event of subsequent rate hearings.

Meanwhile, the rates charged by oil pipe line companies and the contractual arrangements for the purchase, sale and transportation of gas by gas pipe line companies remain under continual review.

NATIONAL OIL POLICY

The initial objective of the National Oil Policy, announced in February 1961, was the attainment of certain target levels of production of oil including natural gas liquids. Production in 1960 had averaged only 544,000 b/d - less than 10 per cent above the 1957 level. The short-term production targets set in 1961 and 1963 were either attained or exceeded. No target was set for 1965 but production averaged an estimated 923,000 b/d, representing an increase of almost 70 per cent over the 1960 figure.

These production increases have been achieved, as envisaged when the Policy was first announced, by greater use of Canadian oil in domestic markets west of the Ottawa Valley and by expansion of export sales to the U.S.A., largely in existing markets. Of the total 379,000 b/d gain in production between 1960 and 1965, 53 per cent is attributable to growth in export sales and 47 per cent to the expansion of the domestic market.

While the initial objectives of the National Oil Policy have been achieved, the Policy continues in being as a means to ensure the continued growth and prosperity of the Canadian oil-producing industry. Thanks to the cooperation of the industry, the success of the National Oil Policy has so far been achieved largely without formal regulation.

However, due to the disruptive effect of imports of gasoline from Europe at distress prices during the second half of 1964, the Government found it necessary in June 1965 to prescribe fixed values for duty purposes on imported gasoline. This was done to prevent the undermining of the National Oil Policy and after the Government had made clear to the oil companies its intention of upholding the Policy.

NATIONAL POWER POLICY

The National Power Policy which was announced on 8 October 1963 stressed the need for taking full advantage of evolutionary changes in the power industry for the provision of abundant electrical energy at lowest possible cost, for a flexible export policy which would permit the long-term export of large blocks of power to the United States to assist in the immediate development of large scale Canadian power projects and the strengthening of our balance of payments position.

In pursuance of these aims, the Board has been co-operating with other agencies in the consideration of inter-provincial and international interconnection of electric power systems.

The Board's participation in the Lower Nelson River and Saint John River studies and in the investigation of the power failure of 9 November 1965 are described later in this report.

OPERATIONS RESEARCH

The organization and development of the Operations Research Branch which was established in the Board in 1964 has progressed during 1965 with the recruitment of personnel to key positions. During the year, operations research techniques were applied to a study of project evaluation and rating procedures; the development of a computer program to simulate gas pipe lines; the development of a method and of a computer program to optimize the design of a gas pipe line and the scheduling of pipe line expansions and additions; and, in cooperation with other Government agencies, the design of a general framework for an activity-oriented regional model of the Canadian economy, where the energy sector to be developed by the Board will be represented by several activity blocks. When completed this framework will include models representing the activities of direct interest to each of the cooperating departments and agencies and will enable the Board to evaluate rapidly and from time to time the results of possible changes in the great number of engineering, economic or policy factors which affect the energy sector of the Canadian economy.

SPECIAL STUDIES

During 1965, the Board was involved in several special studies of which the principal ones are described hereunder.

Lower Nelson River Study

A Federal-Provincial Programming Board with representation from Manitoba Hydro and the Department of Northern Affairs and National Resources has been conducting studies on the feasibility of developing large power sites on the Lower Nelson River in Manitoba. The National Energy Board was called upon, from time to time, during the year to analyze, appraise and advise the Government with regard to these studies and the policy decisions which were necessary to the formulation of a programme of federal participation in this project.

Saint John River Power Development

The Water Resources Branch of the Department of Northern Affairs and National Resources cooperated with the Province of New Brunswick, the United States Department of Interior and United States Army Engineers in the execution of a joint study on the development of power sites on the Upper Saint John River in Maine. Following the studies, negotiations were started for terms of agreement between Canada and the United States on the proposed development and the National Energy Board has been represented on the Canadian delegation since that time. The proposed development could lead to the international exchange of power and energy and to greater interconnection between Canadian and United States utilities in the area.

Investigation of Power Failure

On 10 November 1965, the National Energy Board, with the approval of the Government, commenced an investigation into the circumstances surrounding the massive power failure on 9 November involving Ontario and the eastern United States. Concurrently, the Board enlisted and received the full cooperation of the Hydro-Electric Power Commission of Ontario and the Federal Power Commission.

The Federal Power Commission has given the National Energy Board every cooperation in its investigation. Representatives of the Board have been appointed to various investigating teams assigned to review practices on the power systems involved and to examine the stability conditions on them.

The Board has been seeking to determine the complete facts of the interruption itself, the action required to minimize the possibility of recurrences of such incidents and the severity of the effects. Excellent cooperation has been received from all parties. At the year's end, the investigations and studies were still in progress. The Board will be reporting on the matter in due course.

Canadian Long-Term Energy Forecast

A comprehensive forecast of all forms of energy supply and demand in Canada is being prepared. The forecast

will be by geographic regions, by type of fuel, by consuming sector and, in certain industries, by end-use. It will cover the period to 1985.

Results of the preliminary survey in the natural gas sector were used in the Board's report of July 1965 to the Governor in Council in respect of applications by Alberta and Southern Gas Co. Ltd., Canadian-Montana Pipe Line Company and Trans-Canada Pipe Lines Limited seeking gas export licences.

Oil and Gas Reserves

Pursuant to its obligations under Part II of the Act to review matters relating to energy and pursuant to its responsibilities under Part VI of the Act relating to exports and imports of gas, the Board has maintained up-to-date estimates of reserves and producibility for crude oil, natural gas and natural gas liquids. This work has been supported by liaison with interested provincial agencies and trade associations and by staff field trips.

LIAISON

The Board continued its cooperation in the work of the Canadian Standards Association Sectional Committee to establish two Canadian Standards for the design, construction and operation of oil and gas pipe lines, respectively. The draft standard for oil pipe lines has twice

been ballotted by the Specification Committee and, as a result of these ballots, amendments have been proposed which will require further discussion and ballots prior to submission of the draft standard to the Technical Committee of the Canadian Standards Association. The draft standard for gas pipe lines has undergone one ballot which indicated that further discussions and balloting would be necessary.

The Board also is represented on the Canadian Standards Association Committee which is revising Part III of the Canadian Electrical Code dealing with the construction of electrical transmission lines and other electrical facilities outside buildings.

In conjunction with the Emergency Supply Planning Branch of the Department of Defence Production and a number of energy industry advisory committees, the Board is continuing its emergency planning work in the energy field. In addition, the Board actively participates in the work of NATO, more particularly with the Petroleum Planning Committee of the NATO Wartime Oil Organization.

The Board also maintains liaison in behalf of Canada with the Organization for Economic Co-operation and Development, in regard to energy matters.

ESTIMATES, ESTABLISHMENT AND PERSONNEL

The Board's appropriation for 1965-66 was \$954,000 of which \$767,000 was for salaries and \$187,000 for all other expenses. The establishment of the Board on 1 April 1965 was 95 including the five Board Members and Secretary. An additional five positions were authorized during the year bringing the total to 100. The number on strength at 31 December 1965 was 87.

APPENDIX I

CERTIFICATES - SECTION 44

APPLICANT	FACILITIES	ESTIMATED COST	HEARD	ISSUED	CERTIFICATE NO.
1. THE HYDRO ELECTRIC POWER COMMISSION OF ONTARIO	<p>A 15.2 MILE INTERNATIONAL POWER LINE TO BE DESIGNED AND CONSTRUCTED FOR 345 KV OPERATION BUT TO OPERATE INITIALLY AT 230 KV TO CONNECT THE POWER SYSTEM OF THE APPLICANT AT ITS SARNIA SCOTT TRANSFORMER STATION TO A POINT ON THE INTERNATIONAL BOUNDARY 3.6 MILES SOUTH OF THE VILLAGE OF COURTWRIGHT IN THE PROVINCE OF ONTARIO. THIS SINGLE CIRCUIT LINE WILL INTERCONNECT THE APPLICANT'S SYSTEM TO THE SYSTEM OF THE DETROIT EDISON COMPANY AT THE LATTER'S POWER PLANT AT ST. CLAIR, MICHIGAN, U.S. AT SOME FUTURE DATE IT WILL OPERATE AT 345 KV.</p>	\$2,870,000	9 FEB.'65	19 MAR.'65	EC-1111-6

INTERNATIONAL POWER LINE

APPENDIX I (CONT'D)

CERTIFICATES - SECTION 44

APPLICANT	FACILITIES	ESTIMATED COST	HEARD	ISSUED	CERTIFICATE NO.
GAS PIPE LINES					
1. TRANS-CANADA PIPE LINES LIMITED	38.21 MILES OF 34-INCH DIAMETER LINE OF PIPE AND 42.9 MILES OF 6-INCH DIAMETER LINE OF PIPE, 2 ADDITIONAL COMPRESSOR STATIONS, ADDITIONAL COMPRESSION FACILITIES AT 7 EXIS- TING COMPRESSOR STATIONS, AND CERTAIN PORT- ABLE COMPRESSION FACILITIES IN THE PROVINCES OF SASKATCHEWAN, MANITOBA AND ONTARIO, ALL TO BE CONNECTED TO ITS EXISTING PIPE LINE SYSTEM; TOTAL ADDITIONAL HORSEPOWER: 31,000	\$ 15,430,000.00	16 MARCH 1965	29 APRIL 1965	GC-24
2. TRANS-CANADA PIPE LINES LIMITED	ADDITIONS TO GC-24 - AN ADDITIONAL 45.5 MILES OF 34-INCH DIAMETER LINE OF PIPE IN SASKATCHEWAN AND MANITOBA.	\$ 6,600,000.00	-	3 JUNE 1965	A0-1-GC-24
3. TRANS-CANADA PIPE LINES LIMITED	AN EXTENSION OF THE TIME LIMIT REFERRED TO IN GC-24 AS AMENDED BY A0-1-GC-24 ABOVE	-	-	23 DEC. 1965	A0-2-GC-24
4. TRANS-CANADA PIPE LINES LIMITED	AMENDING THE NAME OF A COMPRESSOR STATION REFERRED TO IN A0-2-GC-24	-	-	PENDING	PENDING
5. CHAMPION PIPE LINE CORPORATION LIMITED	61 MILES OF 8-INCH DIAMETER LINE OF PIPE FROM EARLTON, ONTARIO, TO ROUYN-NORANDA, QUEBEC	\$ 2,215,000.00	15 DEC. 1964 AND 14 APR. 1965	20 MAY 1965	GC-25
6. ALBERTA NATURAL GAS COMPANY	AN ADDITIONAL COMPRESSOR STATION AND ADDITIONS TO AN EXISTING COMPRESSOR STA- TION AND AN EXISTING EXPORT METER STATION TO BE ADDED TO ITS PIPE LINE SYSTEM IN BRITISH COLUMBIA	\$ 5,383,000.00	1965 29 MAR. 1965	13 AUG 1965	GC-26

APPENDIX I (CONT'D)

CERTIFICATES - SECTION 44

APPLICANT	FACILITIES	ESTIMATED COST	HEARD	ISSUED	CERTIFICATE NO.
<u>GAS PIPE LINES</u>					
7. TRANS-CANADA PIPE LINES LIMITED	FIRST STAGE - 20 MILES OF 10 3/4-INCH DIAMETER LINE OF PIPE AND 20 MILES OF 8 5/8-INCH DIAMETER LINE OF PIPE AND AN ADDITIONAL COMPRESSOR STATION; SECOND STAGE - 39 MILES OF PIPE LINE; ALL IN QUEBEC.	\$ 4,134,700.00	7 SEPT. 1965	11 OCT. 1965	GC-27
<u>OIL PIPE LINES</u>					
1. INTERPROVINCIAL PIPE LINE COMPANY	48.7 MILES OF 34-INCH DIAMETER LINE OF PIPE, TIE-IN CONNECTIONS AND MODIFICATIONS, CERTAIN ADDITIONAL PUMPING FACILITIES AT TWO EXISTING PUMPING STATIONS AND A 150,000 BBL. OIL STORAGE TANK, IN SASKATCHE- WAN, MANITOBA AND ONTARIO; TOTAL ADDITIONAL HORSEPOWER: 5,000	\$ 6,772,000.00	10 DEC. 1964	13 JAN. 1965	OC-18
2. INTERPROVINCIAL PIPE LINE COMPANY	AN EXTENSION OF THE TIME LIMIT REFERRED TO IN OC-18 ABOVE	-	-	2 DEC. 1965	AD-1-OC-18
3. MONTREAL PIPE LINE COMPANY LIMITED	62.6 MILES OF 24-INCH DIAMETER LINE OF PIPE TO BE CONNECTED TO ITS EXISTING PIPE LINE SYSTEM, ALL IN QUEBEC	\$ 7,264,000.00	9 DEC. 1964	13 JAN 1965	OC-19
4. MONTREAL PIPE LINE COMPANY LIMITED	AN AMENDMENT TO ONE OF THE CONDITIONS REFERRED TO IN OC-19 ABOVE.	-	-	13 MAY 1965	AO-1-OC-19
5. HYDROCARBONS PIPELINE LIMITED	AN 8 5/8-INCH DIAMETER PIPELINE IN ALBERTA AND BRITISH COLUMBIA, AND TWO 6 5/8-INCH DIAMETER LATERALS CONNECTED THEREWITH.	-	26 OCT. 1965	PENDING	PENDING

APPENDIX I (CONT'D)

CERTIFICATES - SECTION 96

APPLICANT	FACILITY	ISSUED	CERTIFICATE NO.
<u>INTERNATIONAL POWER LINES</u>			
1. BRITISH COLUMBIA POWER AUTHORITY	AN AMENDING ORDER WAS ISSUED TO TRANSFER THE CERTIFICATE HELD BY NORTHERN BRITISH COLUMBIA POWER COMPANY TO BRITISH COLUMBIA POWER AUTHORITY.	14 JAN. 1965	M0-1-65

APPENDIX II
EXEMPTION ORDERS PURSUANT TO SECTION 49

CLASS "B" CONSTRUCTION

GAS PIPE LINES

- 1) PETROLEUM TRANSMISSION COMPANY, FOR TWO NEW PUMPING STATIONS AND AN ADDITION TO AN EXISTING PUMPING STATION, IN SASKATCHEWAN AND MANITOBA; ESTIMATED COST: \$330,000.00. ORDER NO. XG-1-65, DATED THE 16TH DAY OF JULY, 1965.
- 2) TRANS-CANADA PIPE LINES LIMITED, FOR APPROXIMATELY 2040-FEET OF 2-INCH DIAMETER 'CONNECTING LINE' AND METER STATION, IN MANITOBA; ESTIMATED COST: \$15,000.00 ORDER NO. XG-2-65, DATED THE 9TH DAY OF SEPTEMBER, 1965.
- 3) TRANS-CANADA PIPE LINES LIMITED, FOR APPROXIMATELY 5850-FEET OF 4-INCH DIAMETER 'CONNECTING LINE' AND METER STATION IN ONTARIO; ESTIMATED COST: \$35,000.00 ORDER NO. XG-3-65, DATED THE 23RD DAY OF SEPTEMBER, 1965.
- 4) PACIFIC PETROLEUMS LTD., FOR A COMPRESSOR STATION AND WORKS CONNECTED THEREWITH IN BRITISH COLUMBIA; ESTIMATED COST: \$381,500.00. ORDER NO. XG-4-65, DATED THE 30TH DAY OF SEPTEMBER, 1965.
- 5) TRANS-CANADA PIPE LINES LIMITED FOR APPROXIMATELY 1 MILE OF 2-INCH DIAMETER 'TEMPORARY LINE' OF PIPE IN MANITOBA; ESTIMATED COST \$15,000.00. ORDER NO. XG-5-65, DATED THE 7TH DAY OF OCTOBER, 1965.
- 6) CHAMPION PIPELINE CORPORATION LIMITED, FOR AN EXTENSION OF APPROXIMATELY 1500-FEET (TO BE ADDED TO THE PIPE LINE APPROVED BY CERTIFICATE NO. GC-25) NEAR ROUYN, QUEBEC; ESTIMATED COST \$10,000.00. ORDER NO. XG-6-65, DATED THE 18TH DAY OF NOVEMBER, 1965.
- 7) MURPHY OIL COMPANY LTD., FOR APPROXIMATELY 2500-FEET OF 3.5-INCH DIAMETER LINE OF PIPE IN ALBERTA; ESTIMATED COST: \$5,000.00. ORDER NO. XG-7-65, DATED THE 23RD DAY OF DECEMBER, 1965.

OIL PIPE LINES

- 1) ORDER NO. X0-1-65, DATED THE 14TH DAY OF JANUARY, 1965. RESCINDED BY ORDER NO. R0-X0-1-65, DATED THE 1ST DAY OF MARCH, 1965.
- 2) TRANS MOUNTAIN OIL PIPE LINE COMPANY, FOR ADDITIONAL METERING EQUIPMENT FOR CONNECTING FEEDER LINES AT A PUMPING STATION IN ALBERTA; ESTIMATED COST: \$160,000.00. ORDER NO. X0-2-65, DATED THE 1ST DAY OF MARCH, 1965.
- 3) MONTREAL PIPE LINE COMPANY, FOR AN ORDER EXEMPTING A PROPOSED PORTION OF PIPE LINE FROM THE PROVISIONS OF PARAGRAPHS (B) AND (C) OF SECTION 27 OF THE ACT; ORDER NO. X0-3-65, DATED THE 22ND DAY OF APRIL, 1965.
- 4) WESTSPUR PIPE LINE COMPANY, FOR AN 80,000 BARREL OIL STORAGE TANK IN SASKATCHEWAN; ESTIMATED COST: 190,000.00. ORDER NO. X0-4-65, DATED THE 22ND DAY OF JULY, 1965.
- 5) WESTSPUR PIPE LINE COMPANY, FOR AN ADDITIONAL 1500 HORSEPOWER PUMPING UNIT IN SASKATCHEWAN; ESTIMATED COST: \$65,000.00. ORDER NO. X0-5-65, DATED THE 9TH DAY OF SEPTEMBER, 1965.

APPENDIX II (CONT'D)

EXEMPTION ORDERS PURSUANT TO SECTION 49

CLASS "B" CONSTRUCTION

OIL PIPE LINES

- 6) WESTSPUR PIPE LINE COMPANY, FOR AN ADDITIONAL 900 HORSEPOWER PUMPING UNIT IN SASKATCHEWAN; ESTIMATED COST: \$55,000.00; ORDER No. X0-6-65, DATED THE 9TH DAY OF SEPTEMBER, 1965.
- 7) TRANS MOUNTAIN OIL PIPE LINE COMPANY, FOR APPROXIMATELY 4.7 MILES OF 3 1/2-INCH DIAMETER LINE OF PIPE, INCLUDING PUMPING AND METERING FACILITIES IN ALBERTA; ESTIMATED COST: \$147,000.00; ORDER No. X0-7-65, DATED THE 7TH DAY OF OCTOBER, 1965.
- 8) TRANS MOUNTAIN OIL PIPE LINE COMPANY, FOR CERTAIN TERMINAL FACILITIES FOR HANDLING, STORING AND SHIPPING LIQUID PETROLEUM GASES, IN BRITISH COLUMBIA; ESTIMATED COST \$3,000,000.00; ORDER No. X0-8-65, DATED THE 9TH DAY OF DECEMBER, 1965.
- 9) INTERPROVINCIAL PIPE LINE COMPANY, FOR AN ADDITIONAL 2500 HORSEPOWER PUMPING UNIT IN MANITOBA; ESTIMATED COST: \$175,000.00; ORDER No. X0-9-65, DATED THE 9TH DAY OF DECEMBER, 1965.
- 10) MURPHY OIL COMPANY LTD., FOR APPROXIMATELY 2500-FEET OF 3.5-INCH DIAMETER LINE OF PIPE IN ALBERTA; ESTIMATED COST: \$6200.00; ORDER No. X0-10-65, DATED THE 23RD DAY OF DECEMBER, 1965.

APPENDIX II (CONT'D)

EXEMPTION ORDERS PURSUANT TO SECTION 49

CLASS "C" CONSTRUCTION

GAS PIPE LINES

- 1) NIAGARA GAS TRANSMISSION LIMITED, FOR CERTAIN MISCELLANEOUS FACILITIES TO BE ADDED TO ITS EXISTING PIPE LINE SYSTEM IN ONTARIO; ESTIMATED COST: \$5,500.00; ORDER NO. XGM-1-65, DATED THE 25TH DAY OF MARCH, 1965.
- 2) ALBERTA NATURAL GAS COMPANY, FOR CERTAIN MISCELLANEOUS FACILITIES TO BE ADDED TO ITS EXISTING PIPE LINE SYSTEM IN BRITISH COLUMBIA; ESTIMATED COST: \$95,620.00. ORDER NO. XGM-2-65, DATED THE 22ND DAY OF APRIL, 1965.
- 3) TRANS-CANADA PIPE LINES LIMITED, FOR CERTAIN MISCELLANEOUS FACILITIES TO BE ADDED TO ITS EXISTING PIPE LINE SYSTEM IN ALBERTA, SASKATCHEWAN, MANITOBA, ONTARIO AND QUEBEC; ESTIMATED COST: \$5,770,103.00; ORDER NO. XGM-3-65, DATED THE 22ND DAY OF APRIL, 1965.
- 4) WESTCOAST TRANSMISSION COMPANY LIMITED, FOR CERTAIN MISCELLANEOUS FACILITIES TO BE ADDED TO ITS EXISTING PIPE LINE SYSTEM IN BRITISH COLUMBIA; ESTIMATED COST: \$292,721.00; ORDER NO. XGM-4-65, DATED THE 6TH DAY OF MAY, 1965.
- 5) PETROLEUM TRANSMISSION COMPANY, FOR CERTAIN MISCELLANEOUS FACILITIES TO BE ADDED TO ITS EXISTING PIPE LINE SYSTEM IN ALBERTA, SASKATCHEWAN AND MANITOBA; ESTIMATED COST \$11,200.00. ORDER NO. XGM-5-65, DATED THE 30TH DAY OF JULY, 1965.
- 6) WESTCOAST TRANSMISSION COMPANY LIMITED, FOR 3 NEW METER STATIONS TO BE ADDED TO ITS EXISTING PIPE LINE SYSTEM (ADDITIONAL TO FACILITIES APPROVED BY XGM-4-65 ABOVE) IN BRITISH COLUMBIA; ESTIMATED COST: \$75,900.00; ORDER NO. XGM-6-65, DATED THE 6TH DAY OF AUGUST, 1965.

OIL PIPE LINES

- 1) TRANS MOUNTAIN OIL PIPE LINE COMPANY, FOR CERTAIN MISCELLANEOUS FACILITIES TO BE ADDED TO ITS EXISTING PIPE LINE SYSTEM IN ALBERTA AND BRITISH COLUMBIA; ESTIMATED COST: \$610,445.00; ORDER NO. XOM-1-65, DATED THE 14TH DAY OF JANUARY, 1965.
- 2) WESTSPUR PIPE LINE COMPANY, FOR CERTAIN MISCELLANEOUS FACILITIES TO BE ADDED TO ITS EXISTING PIPE LINE SYSTEM IN SASKATCHEWAN AND MANITOBA; ESTIMATED COST: \$232,000.00; ORDER NO. XOM-2-65, DATED THE 11TH DAY OF MARCH, 1965.
- 3) INTERPROVINCIAL PIPE LINE COMPANY, FOR CERTAIN MISCELLANEOUS FACILITIES TO BE ADDED TO ITS EXISTING PIPE LINE SYSTEM IN ALBERTA, SASKATCHEWAN, MANITOBA AND ONTARIO; ESTIMATED COST: \$746,900.00; ORDER NO. XOM-3-65, DATED THE 25TH DAY OF MARCH, 1965.
- 4) MONTREAL PIPE LINE COMPANY LIMITED, FOR CERTAIN MISCELLANEOUS FACILITIES TO BE ADDED TO ITS EXISTING PIPE LINE SYSTEM IN QUEBEC; ESTIMATED COST: \$46,300.00; ORDER NO. XOM-4-65, DATED THE 22ND DAY OF APRIL, 1965.
- 5) TRANS-NORTHERN PIPE LINE COMPANY, FOR CERTAIN MISCELLANEOUS FACILITIES TO BE ADDED TO ITS EXISTING PIPE LINE SYSTEM IN ONTARIO AND QUEBEC; ESTIMATED COST: \$190,000.00; ORDER NO. XOM-5-65, DATED THE 22ND DAY OF APRIL, 1965.

APPENDIX III

LICENCES - EXPORTS OF ELECTRICAL POWER & ENERGY - SECTION 82

APPLICANT	CLASS	KILOWATTS (THOUSANDS)	ANNUAL KILOWATTHOURS (MILLIONS)	TERM	HEARD	ISSUED	LICENCE NO.
1. THE HYDRO ELECTRIC POWER COMMISSION OF ONTARIO	FIRM	3	15	1/4/65 TO 31/3/90	9/2/65	16/3/65	EL-32
2. THE HYDRO ELECTRIC POWER COMMISSION OF ONTARIO	INTER- RUPTIBLE	-	2700-4400	1/4/65 31/12/75	9/2/65	16/3/65	EL-33
3. THE HYDRO ELECTRIC POWER COMMISSION OF ONTARIO	INTER- RUPTIBLE	-	105	1/1/66 31/12/75	9/2/65	16/3/65	EL-34
4. CANADIAN NIAGARA POWER COMPANY LIMITED	FIRM 25 CYCLE	35	307 UNTIL 1969 77 IN 1970	1/4/65 31/3/70	10/2/65	23/3/65	EL-35
5. CANADIAN NIAGARA POWER COMPANY LIMITED	INTER- RUPTIBLE	-	205 UNTIL 1969 50 IN 1970	1/3/65 31/3/70	10/2/65	23/3/65	EL-36

APPENDIX III (CONT'D)

ORDERS - EXPORTS OF ELECTRICAL POWER AND ENERGY PART VI REGULATIONS SECTION 6A

APPLICANT	CLASS	KILOWATTS	ANNUAL KILOWATTHOURS (MILLIONS)	TERM FROM DATE OF ISSUE - MONTHS	ISSUED	ORDER NUMBER
1. THE SHAWINIGAN WATER & POWER COMPANY	FIRM	15	0.100	12	22/4/65	EL0-34
2. THE SHAWINIGAN WATER & POWER COMPANY	FIRM	9	0.020	12	20/5/65	EL0-35
3. THE SHAWINIGAN WATER & POWER COMPANY	FIRM	8	0.017	12	20/5/65	EL0-36
4. THE SHAWINIGAN WATER & POWER COMPANY	FIRM	35	0.080	12	20/5/65	EL0-37
5. THE SHAWINIGAN WATER & POWER COMPANY	FIRM	3	0.003	12	20/5/65	EL0-38
6. THE SHAWINIGAN WATER & POWER COMPANY	FIRM	17	0.060	12	20/5/65	EL0-39
7. THE SHAWINIGAN WATER & POWER COMPANY	FIRM	2	0.0007	12	20/5/65	EL0-40
8. NEW BRUNSWICK ELECTRIC POWER COMMISSION	FIRM	100	0.100	12	30/9/65	EL0-42
9. NEW BRUNSWICK ELECTRIC POWER COMMISSION	FIRM	12	0.015	12	30/9/65	EL0-43
10. NEW BRUNSWICK ELECTRIC POWER COMMISSION	FIRM	25	0.010	12	20/10/65	EL0-44
11. THE CANADIAN TRANSIT COMPANY	FIRM	100	0.025	10	31/7/65	EL0-41
12. THE SHAWINIGAN WATER & POWER COMPANY	FIRM	25	0.075	12	1/11/65	EL0-45
13. THE DETROIT & WINDSOR SUBWAY COMPANY	FIRM	300	1.0	12	25/11/65	EL0-47
14. WEST KOOTENAY POWER & LIGHT	FIRM	20	0.050	12	16/12/65	EL0-48
15. BRITISH COLUMBIA HYDRO & POWER AUTHORITY	FIRM	100	0.300	12	25/11/65	EL0-46

ORDERS AMENDING EXISTING ELECTRIC POWER EXPORT LICENCES ISSUED BY THE BOARD

APPLICANT	ASSOCIATED LICENCE	DATE OF AMENDMENT	AMENDMENT ORDER NUMBER
1. FRASER COMPANIES LIMITED	EL-1	26/10/65	A-0-1-EL-1
2. ONTARIO & MINNESOTA	EL-28	13/5/65	A-0-1-EL-28

APPENDIX IV

LICENCES AND ORDERS - EXPORTS OF NATURAL GAS AND BUTANES

A. LICENCES - NATURAL GAS EXPORT - SECTION 82

APPLICANT	LICENCE NUMBER	ISSUED	TERM		MAXIMUM EXPORT VOLUMES			POINT OF EXPORT
			FROM	TO	DAILY (MCF)	ANNUAL (MMCF)	TERM (MMCF)	
1. ALBERTA AND SOUTHERN GAS CO. LTD.	GL-16	4/8/65	1/11/66	31/10/67	113,125	37,415	-	KINGSGATE, B.C.
			1/11/67	31/10/89	226,250	74,830	1,614,000	
2. CANADIAN-MONTANA PIPE LINE COMPANY	GL-17	4/8/65	1/11/66	31/10/67	12,000	3,650	-	
			1/11/67	31/10/89	24,000	7,300	109,500	CARDSTON, ALBERTA
3. TRANS-CANADA PIPE LINES LIMITED	GL-18	4/8/65	1/11/65	31/10/89	186,000	68,000	1,632,000	EMERSON, MANITOBA
4. TRANS-CANADA PIPE LINES LIMITED	GL-19	8/10/65	1/11/65	31/10/89	17,700	6,500	138,500	PHILIPSBURG, QUE.

B. ORDERS AMENDING EXISTING NATURAL GAS EXPORT LICENCES ISSUED BY THE BOARD - SECTION 17

APPLICANT	AMENDING ORDER	ISSUED	PURPOSE
1. TRANS-CANADA PIPE LINES LIMITED	A0-1-GL-2	23/12/65	(A) EXTEND TERM OF LICENCE GL-2 TO 31 DECEMBER 1966 (B) LIMIT VOLUME TO 96,900 MCF PER DAY AND 20,662,500 MCF DURING ONE YEAR
2. ALBERTA AND SOUTHERN GAS CO. LTD.	A0-2-GL-3	13/ 8/65	(A) ALLEVIATE TEMPORARY OPERATING PROBLEMS - ALLOW EXPORT OF 110 PER CENT OF MAXIMUM DAILY LIMITATION (B) LICENCEE SHALL COMPLY WITH ALBERTA PERMIT 64-3 (C) PRICES NOT LESS THAN SPECIFIED IN CONTRACT DATED 31 JANUARY 1961 AS AMENDED 31/12/62

APPENDIX IV (CONT'D)

B. ORDERS AMENDING EXISTING NATURAL GAS EXPORT LICENCES ISSUED BY THE BOARD - SECTION 17

APPLICANT	AMENDING ORDER	ISSUED	PURPOSE
3. CANADIAN-MONTANA PIPE LINE COMPANY	A0-2-GL-5	13/ 8/65	(A) PRICE NOT LESS THAN SPECIFIED IN CONTRACT DATED 9 NOV. 1961
4. PATRICK T. BUCKLEY	A0-1-GL-7	16/ 9/65	(A) TERM EXTENDED TO 31 MAY 1968

C. ORDERS - BUTANES EXPORT - PART VI REGULATIONS - SECTION 16A

APPLICANT	ORDER No.	ISSUED	TERM FROM TO	MAXIMUM VOLUME BARRELS	POINT OF EXIT
1. SOCONY MOBIL OIL OF CANADA, LTD.	G0-1-65	29/4/65	1/1/66 31/12/66	365,000	HUNTINGDON, B.C. VIA TRANS-MOUNTAIN OIL PIPE LINE COMPANY
2. TEXACO EXPLORATION COMPANY	G0-2-65	12/8/65	15/9/65 14/ 9/66	365,000	HUNTINGDON, B.C. VIA TRANS-MOUNTAIN OIL PIPE LINE COMPANY
3. SOCONY MOBIL OIL OF CANADA, LTD.	G0-3-65	19/8/65	1/10/65 31/12/65	365,000	HUNTINGDON, B.C. VIA TRANS-MOUNTAIN OIL PIPE LINE COMPANY
4. HUDSON'S BAY OIL AND GAS COMPANY LTD.	G0-4-65	3/9/65	1/3/65 28/ 2/66	182,500	CARWAY, ALBERTA VIA AURORA PIPE LINE COMPANY
5. IMPERIAL OIL LIMITED	G0-5-65	3/9/65	13/9/65 12/ 9/66	365,000	GRETNA, MANITOBA VIA INTERPROVINCIAL PIPE LINE COMPANY

APPENDIX V

LICENCES AND ORDERS - IMPORTS OF NATURAL GAS

APPLICANT	LICENCE NUMBER	ISSUED	TERM		MAXIMUM EXPORT VOLUMES			POINT OF IMPORT
			FROM	TO	DAILY (MCF)	ANNUAL (MMCF)	TERM (MMCF)	
1. TRANS-CANADA PIPE LINES LIMITED	GLI-2	27/4/65	-	1/11/66	69,864	25,500	NIAGARA FALLS, ONT.	
			1/11/66	1/11/67	55,891	20,400		
			1/11/67	1/11/68	41,804	15,300		
			1/11/68	1/11/69	27,946	10,200		
			1/11/69	1/11/70	13,973	5,100		76,500

APPENDIX VI

EXPORTS OF CRUDE OIL AND EQUIVALENT TO THE UNITED STATES (BARRELS OF 35 CANADIAN GALLONS)

REFINERY	LOCATION	1964		1965	
		BBL	B/D	BBL	B/D
U.S. DISTRICTS I-IV					
ASHLAND OIL AND REFINING CO.	TONAWANDA, NEW YORK	4,210,878	11,505	5,281,601	14,470
BAY REFINING CO.	BAY CITY, MICHIGAN	3,710,112	10,137	3,363,211	9,214
CONTINENTAL OIL CO.	BILLINGS, MONTANA	4,259,443	11,638	4,447,344	12,185
GREAT NORTHERN OIL CO.	ST. PAUL, MINNESOTA	12,030,386	32,870	13,379,880	36,657
GULF OIL CORP.	TOLEDO, OHIO	1,835,783	5,016	1,985,820	5,441
INTERNATIONAL REFINERIES INC.	WRENTHALL, MINNESOTA	4,850,361	13,252	5,590,423	15,316
LAKEHEAD PIPE LINE CO. INC.	SUPERIOR, WISCONSIN	178,133	487	201,278	551
LEONARD REFINERIES, INC.	ALMA, MICHIGAN	242,246	662	909,432	2,492
MURPHY CORP.	SUPERIOR, WISCONSIN	4,655,318	12,719	4,598,319	12,598
NORTHWESTERN REFINING CO.	ST. PAUL, MINNESOTA	4,284,606	11,707	5,828,045	15,967
OSCEOLA REFINING CO.	WEST BRANCH, MICHIGAN	736,476	2,012	972,609	2,664
THE PERMIAN CORP.	DENVER, COLORADO	106,473	291	-	-
SHELL OIL CO.	SUPERIOR, WISCONSIN	224,000	612	-	-
SOCONY MOBIL OIL CO.	BUFFALO, NEW YORK	3,977,015	10,866	4,398,563	12,051
SOCONY MOBIL OIL CO.	CASPER, WYOMING	334,190	913	238,672	654
SOHIO PETROLEUM CO.	TOLEDO, OHIO	4,359,124	11,910	4,398,867	12,052
UNION OIL CO. OF CALIFORNIA	CUT BANK, MONTANA	27,436	75	24,380	67
OTHERS		33,658	92	270,495	741
TOTAL DISTRICTS I-IV		50,055,638	136,764	55,888,939	153,120
U.S. DISTRICT V					
SHELL OIL CO.	ANACORTES, WASHINGTON	21,029,650	57,458	19,671,582	53,895
SOCONY MOBIL OIL CO.	FERNDALE, WASHINGTON	12,185,846	33,295	11,738,443	32,160
TEXACO INC.	ANACORTES, WASHINGTON	18,459,742	50,436	20,646,374	56,565
TOTAL DISTRICT V		51,675,238	141,189	52,056,399	142,620
TOTAL EXPORTS		101,730,876	277,953	107,945,338	295,740

APPENDIX VII

SUBSISTING LICENCES TO EXPORT NATURAL GAS

	COMPANY	LICENCE NO.	POINT OF EXIT	TERM OF LICENCE		MAXIMUM DAILY (Mcf)	EXPORT ANNUAL (MMcf)	VOLUMES TERM (MMcf)
				FROM	TO			
1.	TRANS-CANADA PIPE LINES LIMITED	GL-1(A0-1)	EMERSON, MANITOBA	11/ 4/60	14/ 5/81	223,000	74,000	1,410,000
2.	TRANS-CANADA PIPE LINES LIMITED	GL-2(A0-1)	NIAGARA FALLS, ONT.	11/ 4/60	31/12/66	96,900	20,662.5	-
3.	ALBERTA AND SOUTHERN GAS CO. LTD.	GL-3(A0-2)	KINGSGATE, B.C.	31/10/61	31/10/86	458,750	153,270	3,826,000
4.	WESTCOAST TRANSMISSION COMPANY LIMITED	GL-4(A0-2)	KINGSGATE, B.C.	10/12/61	10/12/81	152,000	51,000	1,020,000
5.	CANADIAN MONTANA PIPE LINE COMPANY	GL-5(A0-2)	CARDSTON, ALBERTA	31/10/61	31/10/86	36,000	10,950	273,750
6.	NIAGARA GAS TRANSMISSION LIMITED	GL-6(A0-2)	CORNWALL, ONTARIO	31/ 5/60	30/ 6/80	16,710	3,765.7	73,521.75
7.	PATRICK T. BUCKLEY	GL-7(A0-1)	COUTTS, ALBERTA	22/6/60	31/ 5/68	1.3*	10	-
8.	CANADIAN MONTANA PIPE LINE COMPANY	GL-8(A0-1)	ADEN, ALBERTA	1/ 9/60	14/ 5/74	99,460	19,892	220,000
9.	ALBERTA AND SOUTHERN GAS CO. LTD.	GL-16	KINGSGATE, B.C.	1/11/66	31/10/67	113,125	37,415	-
				1/11/67	31/10/89	226,250	74,830	1,614,000
10.	CANADIAN MONTANA PIPE LINE COMPANY	GL-17	CARDSTON, ALBERTA	1/11/66	31/10/67	12,000	3,650	-
				1/11/67	31/10/89	24,000	7,300	109,500
11.	TRANS-CANADA PIPE LINES LIMITED	GL-18(A0-1)	EMERSON, MANITOBA	22/11/65	31/10/66	25,000	8,000	-
				1/11/66	31/10/89	143,000	52,300	1,200,000
12.	TRANS-CANADA PIPE LINES LIMITED	GL-19	PHILIPSBURG, QUE.	1/11/65	31/10/89	17,700	6,500	138,500
13.	WESTCOAST TRANSMISSION CO. LTD.	PC1955-958	HUNTINGDON, B.C.	3/10/57	3/10/77	-	125,000	-

* NOT MORE THAN 1.3 MMCF IN ANY ONE MONTH

APPENDIX VII (CONT'D)

SUBSISTING LICENCES AND ORDERS TO EXPORT BUTANES

	COMPANY	LICENCE OR ORDER NUMBER	POINT OF EXIT	TERM OF LICENCE OR ORDER		MAXIMUM DAILY BARRELS	EXPORT ANNUAL BARRELS	VOLUME TERMINAL BARRELS
				FROM	TO			
14.	SHELL CANADA LIMITED	GL-14	HUNTINGDON, B. C.	15/9/63	14/9 /68	-	2,200,000	11,000,000
* 15.	HUDSON'S BAY OIL AND GAS COMPANY LIMITED	G0-1-64	CARWAY, ALBERTA	1/3/64	28/2/65	-	182,500	182,500
* 16.	TEXACO EXPLORATION COMPANY	G0-2-64	HUNTINGDON, B. C.	15/9/64	15/9/65	-	365,000	365,000
* 17.	IMPERIAL OIL LIMITED	G0-3-64	GRENA, MANITOBA	13/9/64	12/9/65	-	365,000	365,000
* 18.	SOCONY MOBIL OIL OF CANADA LIMITED	G0-4-64	HUNTINGDON, B. C.	15/11/64	31/3/65	-	-	60,000
19.	SOCONY MOBIL OIL OF CANADA LIMITED	G0-1-65	HUNTINGDON, B. C.	1/1/66	31/12/66	-	365,000	365,000
20.	TEXACO EXPLORATION COMPANY	G0-2-65	HUNTINGDON, B. C.	15/9/65	14/9/66	-	365,000	365,000
* 21.	SOCONY MOBIL OIL OF CANADA LIMITED	G0-3-65	HUNTINGDON, B. C.	1/10/65	31/12/65	-	-	365,000
22.	HUDSON'S BAY OIL AND GAS COMPANY LIMITED	G0-4-65	CARWAY, ALBERTA	1/3/65	28/2/66	-	182,500	182,500
23.	IMPERIAL OIL LIMITED	G0-5-65	GRENA, MANITOBA	13/9/65	12/9/66	-	365,000	365,000

* EXPIRED ON OR BEFORE 31 DECEMBER 1965

APPENDIX VIII

EXPORTS OF BUTANES TO UNITED STATES UNDER LICENCES

OR ORDER IN EFFECT DURING 1965

EXPORTER	LICENCE OR ORDER	EXPIRY DATE	MAXIMUM ANNUAL BARRELS	1963 BARRELS	1964 BARRELS	1965 BARRELS	CUMULATIVE EXPORTS BARRELS	TOTAL AUTHORIZED EXPORTS BARRELS	REMAINING UNDER LICENCE OR ORDER BARRELS
1. SHELL CANADA LIMITED	GL-14	14/9/66	2,200,000	161,121	1,375,505	1,591,758	3,128,384	11,000,000	7,871,616
2. HUDSON'S BAY OIL AND GAS CO. LTD.	GO-1-64	28/2/65	182,500	-	132,615	23,978	156,593	182,500	(25,907) ⁽¹⁾
3. TEXACO EXPLORATION COMPANY	GO-2-64	15/9/65	365,000	-	207,559	132,461	340,020	365,000	(24,980) ⁽¹⁾
4. IMPERIAL OIL LIMITED	GO-3-64	12/9/65	365,000	-	29,845	12,568	42,413	365,000	(322,587) ⁽¹⁾
5. SOCONY MOBIL OIL OF CANADA, LTD.	GO-4-64	31/3/55	-	-	30,280	25,046	55,326	60,000	(4,674) ⁽¹⁾
6. SOCONY MOBIL OIL OF CANADA, LTD.	GO-1-65	31/12/66	365,000	-	-	-	-	365,000	365,000
7. TEXACO EXPLORATION COMPANY	GO-2-65	14/9/66	365,000	-	-	107,744	107,744	365,000	257,256
8. SOCONY MOBIL OIL OF CANADA, LTD.	GO-3-65	31/12/65	-	-	-	46,798	46,798	365,000	(318,202) ⁽¹⁾
9. HUDSON'S BAY OIL AND GAS CO. LTD.	GO-4-65	28/2/66	182,500	-	-	111,212	111,212	182,500	71,288
10. IMPERIAL OIL LIMITED	GO-5-65	12/9/66	365,000	-	-	-	-	365,000	365,000
TOTAL				161,121	1,775,804	2,051,565	3,988,490	13,615,000	8,930,160 ⁽²⁾

(1) EXPIRED ON OR BEFORE 31 DECEMBER 1965 - NUMBERS IN BRACKETS REPRESENT VOLUMES WHICH WILL NOT BE EXPORTED.

(2) VOLUMES REMAINING UNDER LICENCE OR ORDER AT 31 DECEMBER 1965.

APPENDIX VIII

EXPORTS OF NATURAL GAS TO UNITED STATES UNDER SUBSISTING LICENCES

EXPORTER	MAXIMUM DAILY MMCF	MAXIMUM ANNUAL MMCF	CUMULATIVE TO 31/12/59	1960 MMCF	1961 MMCF	1962 MMCF	1963 MMCF	1964 MMCF	1965 MMCF	CUMULATIVE EXPORTS MMCF	TOTAL AUTHORIZED EXPORTS MMCF	REMAINING UNDER LICENCE MMCF (4)
1. TRANS-CANADA PIPE LINES LIMITED												
GL-1(A0-1)	223.00	74,000.0	-	12,465	59,139	61,954	62,765	71,366	73,987	341,715	1,410,000	1,068,284
2. TRANS-CANADA PIPE LINES LIMITED												
GL-2(A0-1)	96.90	20,662.5	-	-	-	-	-	-	-	-	20,662.5	20,662.5
3. ALBERTA & SOUTHERN												
GL-3(A0-2)	458.75	153,270.0	-	-	7,819	118,393	128,065	146,068	152,599	552,944	3,826,000	3,273,056
4. WESTCOAST TRANSMISSION												
GL-4(A0-2)	152.00	51,000.0	-	-	1,065	35,550	40,261	43,507	42,627	163,010	1,020,000	856,990
5. CANADIAN-MONTANA												
GL-5(A0-2)	36.00	10,950.0	-	-	102	10,070	10,838	10,736	10,927	42,673	273,750	231,077
6. NIAGARA GAS TRANSMISSION												
GL-6(A0-2)	16.71	3,765.7	-	-	-	257	1,687	2,078	3,144	7,166	73,521.75	66,355.75
7. PATRICK T. BUCKLEY												
GL-7(A0-1)	1.30	10.0	-	3	3	3	3	2	2	16	80	64
8. CANADIAN-MONTANA												
GL-8(A0-1)	99.45	19,892.0	-	5,928	15,765	17,998	16,414	17,142	18,379	91,626	220,000	128,374
9. ALBERTA & SOUTHERN												
GL-9(3)	226.25	74,830.0	-	-	-	-	-	-	-	-	1,614,000	1,614,000
10. CANADIAN-MONTANA												
GL-10(3)	24.00	7,300.0	-	-	-	-	-	-	-	-	109,500	109,500

APPENDIX VIII (CONT'D)
EXPORTS OF NATURAL GAS TO UNITED STATES UNDER SUBSISTING LICENCES

EXPORTER	MAXIMUM DAILY MMCF	MAXIMUM ANNUAL MMCF	CUMULATIVE TO 31/12/59	1960 MMCF	1961 MMCF	1962 MMCF	1963 MMCF	1964 MMCF	1965 MMCF	CUMULATIVE EXPORTS MMCF	TOTAL AUTHORIZED EXPORTS MMCF	REMAINING UNDER LICENCE MMCF (4)
11. TRANS-CANADA PIPE LINES LIMITED												
8L-18(A0-1)	143.00	53,300.0	-	-	-	-	-	-	-	-	1,200,000	1,200,000
12. TRANS-CANADA PIPE LINES LIMITED												
8L-19	17.70	6,500.0	-	-	-	-	-	-	-	-	138,500	138,500
13. WESTCOAST TRANSMISSION												
PC1955-958	303.0 ⁽²⁾	125,000.0	156,426	80,364	85,020	98,588	99,498	101,340	103,044	724,280	2,500,000	1,775,720
TOTAL	1,796.77	600,480.2	156,426	98,780	168,913	342,813	359,551	392,239	404,709	1,923,431	12,385,351	10,461,920

(1) 1.3 MMCF PER MONTH

(2) MAXIMUM DAILY RATE ALLOWED BY CONTRACT

(3) NO EXPORT AS OF 31 DECEMBER 1965

(4) IT MAY NOT BE POSSIBLE TO REMOVE THE TOTAL REMAINING UNDER LICENCE BECAUSE OF PEAK DAY AND ANNUAL VOLUME RESTRICTIONS

APPENDIX IX

SUBSISTING LICENCES TO IMPORT NATURAL GAS

COMPANY	LICENCE NO:	POINT OF ENTRY	TERM OF LICENCE		MAXIMUM DAILY (MCF)	EXPORT ANNUAL (MMCF)	VOLUMES TERM (MMCF)
			TO	FROM			
COUTTE GAS COMPANY LIMITED	PC 1955-1742	COUTTS, ALBERTA	18/11/55	31/3/75	-	120	-
UNION GAS COMPANY OF CANADA LIMITED	PC 1956-1848	OJIBWAY, ONTARIO	17/12/56	31/3/70	-	5,500	-
UNION GAS COMPANY OF CANADA LIMITED	GLI-1	OJIBWAY, ONTARIO	1/7/65	5/11/76	55,000	15,500	170,000
TRANS-CANADA PIPE LINES LIMITED	GLI-2	NIAGARA FALLS, ONTARIO	1/11/65	1/11/66	69,864	25,300	
			1/11/66	1/11/67	55,891	20,400	
			1/11/67	1/11/68	41,804	15,300	
			1/11/68	1/11/69	27,946	10,200	
TECUMSEH GAS STORAGE LIMITED	GLI-3	OJIBWAY, ONTARIO	1/11/69	1/11/70	13,973	5,100	76,500
			FIRST IMPORT	1/8/69	20,000	3,000	6,000

(1)

(1) ISSUED 12 JANUARY 1966

APPENDIX X

IMPORTS OF NATURAL GAS FROM THE UNITED STATES UNDER SUBSISTING LICENCES

IMPORTER	MAXIMUM DAILY MCF	MAXIMUM ANNUAL MMCF	CUMULATIVE TO 31/12/59	1960 MMCF	1961 MMCF	1962 MMCF	1963 MMCF	1964 MMCF	1965 MMCF	CUMULATIVE TOTAL MMCF	AUTHORIZED IMPORTS MMCF	REMAINING UNDER LICENCE MMCF (1)
1. COUTTS GAS COMPANY LIMITED PC 1955-1742	-	120	284	74	75	73	78	91	99	774	2,340	1,566
2. UNION GAS COMPANY OF CANADA LIMITED PC 1956-1848	-	5,500	32,432	5381	5407	5404	5410	5404	5404	64842	118,000	53,158
3. UNION GAS COMPANY OF CANADA LIMITED GLI-1	55,000	15,500	-	-	-	-	-	-	8091	8091	170,000	161,909
4. TRANS-CANADA PIPE LINES LIMITED GLI-2	(SEE APPENDIX IX)	(SEE APPENDIX IX)	-	-	-	-	-	-	2156	2156	76,500	74,344
5. TECUMSEH GAS STORAGE LIMITED GLI-3	20,000	3,000	-	-	-	-	-	-	-	-	6,000	6,000
TOTAL	-	-	33,047	5455	5482	5477	5488	5495	15515	75628	372,840	296,646

(1) IT MAY NOT BE POSSIBLE TO IMPORT TOTAL REMAINING VOLUMES UNDER LICENCE
BECAUSE OF MAXIMUM DAILY AND ANNUAL VOLUME RESTRICTIONS.

APPENDIX XI

EXPORTS OF ELECTRICAL ENERGY TO THE UNITED STATES - CALENDAR YEAR - 1965

(THOUSANDS OF KILOWATTHOURS)

EXPORT LICENSEE & LICENCE NO.	LICENCE AUTHORIZATION		GROSS ENERGY EXPORTED		REPORTED DOLLAR VALUE OF EXPORT (DUTY EXCLUDED)	
	FIRM	INTERRUPTIBLE	FIRM	INTERRUPTIBLE	FIRM	INTERRUPTIBLE
1. MAINE & NEW BRUNSWICK ELECT. CO.	250,000		71,304	1,915	678,955.00	3,083.00
2. FRASER COMPANIES	105,110	25,000	92,260		876,470.00	
3. NEW BRUNSWICK ELECTRIC POWER COMM.	16,000			23,774		239,551.07
"		115,000		30,820		309,851.77
"	105,000	115,000	16,202		121,867.43	
"	125		75		2,645.19	
"			179,841	56,509	1,679,937.62	552,485.84
SUB TOTAL NEW BRUNSWICK				199,150	6,021.00	477,432.36
4. CEDAR RAPIDS TRANSMISSION CO.		1,200,000	340	32,743	172,685.81	180,699.26
5. SHAWINIGAN WATER & POWER CO.	356	61,250	13,815		178,706.81	658,131.62
6. SOUTHERN CANADA POWER CO.	19,250		14,155	231,893	402,795.00	
SUB TOTAL QUEBEC			68,895	577,649		2,313,358.80
7. HYDRO ELECTRIC POWER COMM. OF ONTARIO	98,600	1,500,000	1,361	37,603	1,512.36	150,411.20
"	4,000	105,000	756		2,720.83	
"	15,000		1,381	1,726,145	341,300.24	6,977,783.01
"	77,000	4,500,000	61,381	11,770	1,214,143.38	47,078.51
"	230,000	37,500	231,406	103,160	466,945.13	464,221.49
8. CANADIAN NIAGARA POWER CO.	83,220	155,000	73,866			
"	25		24			
"	1,000		569			
SUB TOTAL ONTARIO			438,258	2,456,327	2,429,416.94	9,952,853.01
9. B.C. HYDRO & POWER AUTHORITY	2,300	1,500,000	2,352	178,152	33,258.60	3,881.50
"		10,000				
"	80	500,000	64	12,055	3,985.96	
"	50		21		448.54	
10. WEST KOOTENAY POWER & LIGHT (NOVEMBER ONLY)			2,437	190,811	37,693.10	3,881.50
SUB TOTAL BRITISH COLUMBIA			634,691	2,935,540	4,325,754.47	11,167,351.97
TOTAL CANADA						

ELECTRICAL ENERGY - SUPPLEMENTARY STATISTICS
(THOUSANDS OF KILOWATTHOURS)

ELECTRIC ENERGY GENERATION FOR ALL CANADA	1965	143,160,854
ELECTRIC ENERGY IMPORTATION FROM U.S.A.	1965	3,577,639
CANADIAN ENERGY SUPPLY FOR	1965	146,738,493
ELECTRIC ENERGY EXPORT (GROSS) TO U.S.A.	1965	634,691
		2,935,540

(PRELIMINARY)

(FIRM) - 0.4% OF CANADIAN SUPPLY
(INTERRUPTIBLE) - 2.0% OF CANADIAN SUPPLY

*ENERGY ACCOUNTING - NO MONETARY EXCHANGE



NATIONAL ENERGY BOARD

ANNUAL REPORT



FOR THE YEAR ENDED
31 DECEMBER 1966

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NATIONAL ENERGY BOARD

ANNUAL REPORT

FOR THE YEAR ENDED

31 DECEMBER 1966

NATIONAL ENERGY BOARD
OTTAWA 1, ONT.



OFFICE NATIONAL DE L'ÉNERGIE
OTTAWA 1, ONT.

FILE NO. 7-2-8
DOSSIER

31 March 1967.

The Honourable Jean-Luc Pépin, P.C.,
Minister of Energy, Mines and Resources,
O t t a w a.

Dear Sir:

In accordance with the provisions of
Section 91 of the National Energy Board Act,
Statutes of Canada, 1959, Chapter 46, I have
the pleasure to submit the Annual Report of
the Board for the year ending 31 December 1966.

Yours faithfully,

A handwritten signature in dark ink, appearing to read "I.N. McKinnon".

I.N. McKinnon,
Chairman.



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NATIONAL ENERGY BOARD

I.N. McKinnon	-	Chairman
R.D. Howland	-	Vice-Chairman
H.L. Briggs	-	Member
D.M. Fraser	-	Member
Maurice Royer	-	Member
Robert A. Stead	-	Secretary

J.L. Britt	-	Assistant Secretary, Administration Branch
T.L. de Fayer	-	Director, Economics Branch
J.G. Stabback	-	Chief Engineer, Engineering Branch
E.B. McDougall	-	Financial Adviser, Financial Branch
F.H.J. Lamar	-	Counsel, Law Branch
J.G. Debanné	-	Director, Operations Research Branch

REPORT OF THE NATIONAL ENERGY BOARD FOR THE
YEAR ENDING 31 DECEMBER 1966

INTRODUCTION

This is the eighth annual report of the Board.

Continued growth and development in the energy sector of the economy were reflected in increased activity by the Board in respect of its regulatory and advisory responsibilities under the National Energy Board Act.

Six public hearings were held during 1966. Six certificates and licences were issued during 1966 as a consequence of hearings held in 1965 and 1966. The total number of certificates, licences and orders issued in 1966 was 769 which compares with 629 issued in 1965.

The ensuing sections of this report describe the activities of the Board during 1966 in more detail.

AUTHORIZATION OF EXPORTS AND IMPORTS OF GAS
AND EXPORTS OF ELECTRICAL POWER

During 1966, with the approval of the Governor in Council, the Board issued three licences for the export of natural gas, two licences for the import of natural gas, and two licences for the export of electric power and energy.

There were 16 subsisting licences for the export of gas as of 31 December 1966. Three of these licences, issued to Trans-Canada Pipe Lines Limited, are conditional on the approval of the "Great Lakes Project" by the Federal Power Commission of the United States of America. One of them authorizes export of gas at Emerson, Manitoba, which gas must be re-imported at Sault Ste. Marie and Sarnia, Ontario, to serve the Eastern Canadian market. The amount of gas authorized for export under the other 15 licences is some 1,884,000 Mcf per day. These licences are listed in Appendix VII.

The Board also issued, with the approval of the Governor in Council, seven orders amending gas export licences and eight orders amending electric power export licences. Three of these orders amended licences issued to Trans-Canada Pipe Lines Limited in respect of the "Great Lakes Project" by adding a condition respecting an agreement

wherein Trans-Canada undertook to preserve the status of its line through Northern Ontario as the main line for delivery of Western Canadian gas to Eastern Canada. Two licences held by Alberta and Southern Gas Company Limited were amended to permit the company to increase the rate of export of gas in order that earlier shortfalls in volume exported, as compared with volume licensed for export, might be made good.

Licence GL-18, issued in 1965 to Trans-Canada Pipe Lines Limited for the export of gas at Emerson, Manitoba, was amended to reduce the authorized exports to conform with the volumes actually requested by Midwestern Gas Transmission Company under their option agreement with Trans-Canada Pipe Lines Limited. This licence was further amended to permit the export of certain interruptible volumes to 31 October 1967 pending a decision by the Federal Power Commission respecting the "Great Lakes Project", upon which depends the commencement of the firm exports which are the primary subject of the licence.

Four orders were issued under Section 16A of the National Energy Board Part VI Regulations for the export of butanes by oil pipe lines. These orders replaced existing orders which were to expire during 1966.

Three orders amending gas import licences were issued by the Board with the approval of the Governor in Council. Two of the orders amended a licence held by Trans-Canada Pipe Lines Limited by removing the restriction on maximum daily quantity and by increasing the total volumes to be imported.

Under Section 6B of the Part VI Regulations, two orders were issued which permit the import of a maximum volume of one million cubic feet per day of gas. These imports serve two small communities in Southern Alberta.

One emergency order was issued under Section 17 of Part VI Regulations to allow Union Gas Company of Canada Limited to import gas at Ojibway, Ontario, on a temporary basis.

Under Section 6A of the Part VI Regulations, the Board issued 15 orders authorizing the export of electric power and one order amending a previous export order.

The licences and orders referred to in this section of the report are summarized in Appendices III, IV and V.

AUTHORIZATION OF CONSTRUCTION OF PIPE LINES AND INTERNATIONAL
POWER LINES

The Board held six public hearings during 1966 on applications for additional gas pipe line facilities. Three Certificates of Public Convenience and Necessity were, pursuant to Section 44 of the Act, issued with the approval of the Governor in Council. These Certificates have been summarized in Appendix I. One application was dismissed. As of 31 December 1966, three of the applications had not been decided.

Under Section 49 of the Act, the Board is empowered to approve the construction of pipe lines or branches or extensions to pipe lines not exceeding 25 miles in length and to approve other miscellaneous pipe line facilities by issuing orders exempting such construction from any or all of the provisions of Sections 25 to 29 of the Act. The Board issues exemption orders under Section 49 where, in its opinion, it would not be inconsistent with the public interest to do so. During 1966, 32 such exemption orders were issued in regard to gas and oil pipe lines. Details of these exemption orders may be found in Appendix II.

No applications were received during the year for the construction of international power lines.

MISCELLANEOUS REGULATORY ORDERS

The Board is charged with making provisions for the protection of property and the safety of the public and pipe line employees in the operation of a pipe line. The responsibilities relate particularly to crossings involving pipe lines, highways and roads, railways, sewers or other utility services. Also, a pipe line may not be opened for transmission of gas or oil except by order of the Board, issued only upon the Board being satisfied that the pipe line may safely be opened for transmission. Crossing orders are issued pursuant to Sections 76 and 77 and leave-to-open orders pursuant to Section 38 of the Act. In 1966 the Board issued 474 crossing orders and 47 leave-to-open orders. In further fulfilment of its obligation to promote the safety of operation of pipe lines, the Board's staff carried out numerous field inspections relating to the pressure testing of new gas and oil pipe lines, retesting of existing pipe lines, internal sandblasting of portions of a pipe line to effect a decrease in frictional resistance, and testing of gas compression and oil pumping facilities and other miscellaneous pipe line installations.

The Board issued 9 orders approving plans, profiles and books of reference for new pipe lines and approving

exemption from submission of plans, profiles and books of reference for relocations of existing pipe lines. Two permits were issued allowing correction of plans, profiles and books of reference already approved and on deposit in respective Land Registry Offices.

The Board also issued 34 miscellaneous orders, including a number related to the approval of increased maximum operating pressures for existing oil pipe lines and to the approval of sale, conveyance or lease of parts of pipe lines within the Board's jurisdiction. The Board amended 80 existing orders and 5 were rescinded.

Four orders issued during the year were associated with the export of electric power. One of these was an emergency order issued to Cominco Limited to enable it to assist in emergency energy supply to the British Columbia Lower Mainland system through export, transmission via United States power systems and re-import into British Columbia. The other three miscellaneous orders dealt with minor details of existing licences.

PIPE LINE LEAKS, BREAKS AND MALFUNCTIONS

The following is a summary of leaks, breaks, malfunctions and other pipe line incidents reported to the Board during 1966 by companies under the jurisdiction of the National Energy Board Act:

<u>Origin of Reported Incidents</u>	<u>No. of Incidents</u>	<u>Remarks</u>
Corrosion	7	Five were caused by external sources, while two were caused by corrosion of the interior surface of the pipe.
Defective Pipe	48	There were small leaks resulting from minor defects in the longitudinal seam of pipe.
Defective Equipment	22	These were mainly caused by engine, compressor and pump failures, including faulty packing material, damaged bearings, cracked turbine blading, defective lubrication, etc.
Defects in Circum- ferential Field Welds	1	Crack in weld.
Defects resulting from Construction Methods	1	Caused by rock in backfill material.
Caused by Other Parties	1	Blasting operations in the vicinity of the line of pipe caused a heavy rock to land on and damage the line of pipe.
	—	
TOTAL	<u>80</u>	

No injuries to persons occurred.

FINANCIAL REGULATION

During the year 1966 the Board continued to maintain surveillance over the financial affairs of pipe line companies under its jurisdiction. Field examinations have fallen behind projected levels because of a shortage of staff, attributable in part to unfilled vacancies and in part to preoccupation of available personnel with higher priority work. However, new reporting procedures designed to make the most effective use of available personnel are currently being developed and introduced. Plans are in the development stage for additional use of the computer facilities available to the Board to improve and facilitate the work of the Financial Branch.

New procedures which were initiated during 1966 include a revision of the Board's Uniform Classification of Accounts for Oil Pipe Line Companies. Arrangements have been made between the Board and the various oil pipe line companies concerned whereby the revised Classification of Accounts became operative on 1 January, 1967, pending approval of the Governor in Council.

No requests for public hearings on rate matters were received during the year, nor were any hearings initiated by the Board on such matters. A hearing which the Board had intended to hold in the course of the year,

on the subject of the proper accounting treatment of income tax for rate-making purposes, had to be postponed sine die because of the pressure of work on applications for certificates and licences. However, progress in staffing the Rates Division made it possible to initiate certain studies necessary for the development of rate regulatory procedures. In addition to a general surveillance of rates, tolls and tariffs carried out by examination of reports submitted by pipe line companies under the Board's jurisdiction, more detailed analytical techniques are under development.

AMENDMENTS TO REGULATIONS

Four amendments were made to the National Energy Board Part VI Regulations in 1966.

Section 6A was amended to increase the quantities of electrical power and energy that the Board may authorize by order to be exported. The limits are now 4,000 kilowatts and 20,000,000 kilowatthours for a term not exceeding three years, having previously been 1,000 kilowatts and 5,000,000 kilowatthours for a term not exceeding one year.

A new Section 6B was added to allow the Board to dispense, by order, of applications for the exportation and importation of small quantities of gas where it does not appear to the Board that the public interest requires the

holding of a public hearing and where the scale of the proposed transaction does not justify the time and expense involved in the public hearing procedure. This section provides that the Board may, by order and with the approval of the Governor in Council, authorize the exportation or importation of not more than one million cubic feet of gas per day for a term not exceeding twenty years.

Section 15 was amended to provide revised procedures for the submission of information to the Board in respect of gas imports and exports.

Section 19 was added to the Part VI Regulations to empower the Board to authorize the exportation of power under emergency conditions in such amounts and for such periods of time as the Board considers necessary.

ADVISORY FUNCTIONS,
SPECIAL STUDIES AND LIAISON

Pursuant to its obligations under Part II of the Act to perform advisory functions relating to energy and sources of energy within and outside Canada, the Board has carried out a number of special studies and has maintained liaison with other responsible authorities. Some of these activities are summarized herein.

National Oil Policy

The oil industry had another good year in 1966. Production of crude oil and natural gas liquids reached a record level of some 1,012,000 barrels daily, representing an increase of about 90,000 barrels daily over 1965. While both domestic and export markets contributed to this growth, demand for Canadian oil in the United States was particularly buoyant. In addition, the final quarter of 1966 saw the beginning of large-scale shipments of propane to Japan.

While the industry's performance during 1966 was satisfactory, two particular problem areas assumed greater importance in the Board's continuing appraisal of progress under the National Oil Policy. The first of these relates to the fact that while the growth of Canadian oil production has been impressive (the 1966 level was approximately double

that of the late 1950's), Canada's petroleum resource base has been expanding even more rapidly. This development poses an urgent need for further expansion of markets for Canadian oil. The other problem concerns investment in refinery capacity in Ontario west of the Ottawa Valley which has recently been inadequate in relation to market requirements. This fact, together with the persistence of low prices and easy supply conditions on the world oil market, has resulted in continuing pressure to use foreign-origin products west of the Ottawa Valley.

Both problems received intensive study by the Board during 1966. Very close contact was maintained with industry and other governments. Results may be apparent in 1967 and later years.

Canadian Long-Term Energy Forecast

Development of the Canadian Long-Term Energy Forecast continued throughout the year and the material was grouped, for purposes of preliminary discussion, into regional sectors. The first section of the staff paper dealing with the Atlantic Provinces forecast, together with consolidated historical series covering fuels and electricity, was distributed among interested parties for preliminary comment and criticism before finalization of the staff report. Further sections of the study are expected to become available commencing early in 1967.

Oil and Gas Reserves

The Board has maintained up-to-date estimates of reserves and producibility for crude oil, natural gas and natural gas liquids. This work has included liaison with interested provincial agencies and trade associations, and staff field trips.

Coal

The Board took an active part in the study of the coal industry in Nova Scotia, which was carried out by a consultant, Dr. J.R. Donald. The Board's contribution to this work, which was the basis of the Government decision on the Cape Breton coal industry, was largely in an advisory capacity, but a sub-study was carried out by the Board and a report was made to Dr. Donald entitled, "Economics of a Minehead Coal-fired Thermal Generating Plant in the Vicinity of Sydney, N.S.". This report included a forecast of fuel consumption for Nova Scotia and New Brunswick utilities.

Electric Power

A number of studies were continued or started during the year in the field of electric power.

Subsequent to the power failure of 9 November, 1965 which affected power utilities in Ontario and the North-eastern United States, the Board was directed by the

Government to analyze the causes of the failure and to formulate recommendations to avoid a recurrence. The detailed work associated with that study continued through the year and involved considerable liaison with committees established to investigate the matter, particularly those organized by the United States Federal Power Commission. The Board acknowledges the co-operation received from the Federal Power Commission and Ontario Hydro, the one Canadian utility involved in the incident. Two reports are now in the course of completion. One will be a technical examination of power equipment and system performances during the blackout; this information should be of assistance to all Canadian power utilities in their efforts to improve the dependability of their power supplies. The other report will be addressed to the government and will include recommendations on a number of aspects affecting security of supply to customers of Canadian electric power utilities.

During the year, the Government of Canada announced that certain assistance would be provided to the Government of Manitoba in the development of the Lower Nelson River. The Board took part in studies related to the decision. Following the Government announcement that Atomic Energy of Canada Limited would be the Federal

agency responsible for the construction of the Nelson River transmission system, the Board participated in engineering and economic studies, carried out with the assistance of consultants, which led to the decision to use high voltage, direct current for this transmission system.

The Board continued its representation on the team of experts involved in studying and negotiating with the United States authorities the possible development of the upper reaches of the Saint John River in the State of Maine.

The interconnection of electric power systems in Canada, as referred to in the National Power Policy, is being studied by the Federal-Provincial Working Committee on Long Distance Transmission on which the Board is represented. This committee received during the year an Interim Report from a consultant hired to investigate the economic feasibility of a national network. Although the consultant had not submitted a final report by year end, the Board is studying in more detail some of the more important aspects of the consultant's work.

The Atlantic Development Board is involved in a number of additions to electric power systems in the Atlantic Provinces region, and the National Energy Board

was invited on occasion to give advice to the Atlantic Development Board staff. Such instances, during 1966, included work associated with the decision to install a 150,000 Kw thermal-electric generating unit at the Trenton Plant of the Nova Scotia Power Commission, and work associated with the installation of power cables on the Prince Edward Island-Mainland Causeway to provide system interconnection between the P.E.I. power system and the Maritime Power Pool.

Liaison

The Board continued to co-operate in the work of the Canadian Standards Association which is engaged in the preparation of standard codes for the design, construction and operation of oil and gas pipe lines. The final draft standard for oil pipe lines has been accepted by the Specifications Committee and the Sectional Committee and has been forwarded to the Technical Council of the Canadian Standards Association for approval. The first draft of the code for gas pipe lines is being re-drafted following a number of meetings with the Sub-Committees concerned of the Specifications Committee of the Canadian Standards Association. The re-draft is expected to be ready for the Specifications Committee decision early in 1967.

The Board also continued to participate in Committee work of the Canadian Standards Association relating to revisions to Part III to the Canadian Electrical Code (Outside Wiring).

The Board held discussions with the National Harbours Board and the Board of Transport Commissioners in respect of the design of specialized pipe line facilities to be installed for use on docks and at railroads in connection with the handling of liquid propane gases for export at Vancouver.

Work commenced on the preparation of two oil and gas pipe line maps of Canada. This is a combined project in association with the Department of Energy, Mines and Resources and the Dominion Bureau of Statistics.

The Board has co-operated during the year with other departments of Government in the updating of electric power transmission maps.

The Board actively participated in the committee work of the Canadian Electrical Association and the Canadian Nuclear Association in order to foster liaison between the Government and these national associations.

In conjunction with the Emergency Supply Planning Group of the Department of Defence Production and a number of industry advisory committees, the Board is continuing

its emergency planning work in the energy field. In addition, the Board actively participates in the work of NATO, more particularly with the Petroleum Planning Committee of the NATO Wartime Oil Organization.

The Board maintains liaison on behalf of Canada with the Organization for Economic Co-operation and Development in regard to energy matters. In 1966, the Energy Committee of that body published a report entitled "Energy Policy - Problems and Objectives" designed to contribute to an improved appreciation of the problems of energy policy. The Board contributed to this study and, among other things, ensured that its references to Canada were pertinent and accurate.

In the field of data processing liaison, the National Energy Board is represented on the Advisory Committee of the Central Data Processing Service Bureau and its Bureau Users' Group which advises the Bureau on matters of policy related to data processing and Bureau operations.

A Committee representing the Economic Council, the Bank of Canada, the Department of Finance and the National Energy Board was formed in 1966 to implement a pilot data bank project initiated by the Economic Council. The purpose of this project was to test on a trial basis, data storage retrieval and analysis systems for economic

time series developed by the Economic Council. The Committee has now turned over the responsibility for maintaining and expanding the pilot data bank to the Dominion Bureau of Statistics.

OPERATIONS RESEARCH

Electric Power System Studies

Work progressed throughout the year on the investigation and development of computer applications in the study of electric power systems. The emphasis was placed on programs which will enable the Board to study, in broad terms, electric power resource development and use, electric power transmission and power system interconnection. Standard programs were adapted and employed but work was also done to develop special programs for particular aspects of the Board's work where such were not available elsewhere. For instance, a program was developed to study the probabilities of outages of generators in a power system. This program is used to assess the reliability of existing or projected power generation systems.

INDATA

The computer program (software) for the first phase of a generalized input system (INDATA) was developed

for computer studies at the Board in order to permit a systems approach to information requirements at the National Energy Board and to facilitate the programming work involved on the input phase of computer programming. This system is now operational.

SARGE

SARGE, or a System for Automatic Report Generation, was developed at the National Energy Board to facilitate the design and implementation of output in computer applications. This program was developed as a joint project by the Economic Council of Canada and the National Energy Board.

Investment Model for Gas Transmission Systems

An investment model for the optimal design of gas transmission systems and the expansion of such systems was developed at the Board using a dynamic programming method. This model computes a detailed schedule of facilities, i.e. compressor units, compressor stations and loops, in order to meet the forecasted gas demand at the minimum cumulative present-worth cost of transportation. This model is now operational on an IBM 360 Mod 65 computer.

Energy Model

A project for an energy-oriented model of the Canadian economy was initiated, starting with a pilot model of Ontario. A preliminary model of electricity

demand in Ontario was developed and development work was carried out on a model to plan electricity generation capacity. Concurrent with this research and development work on the pilot model for Ontario, preliminary work has started on an exploration model of the oil and gas industry in Western Canada.

DATABANK

A system for storage, retrieval, manipulation and statistical analysis of economic time series known as the DATABANK was adopted and used to store and analyze economic data relevant to electricity demand in the Province of Ontario. The purpose of this econometric research is to develop a pilot model of the energy sector of Ontario which is, in turn, part of a large project to develop a regional energy-oriented model of the Canadian economy.

Computer Terminal

In order to satisfy increasing requirements for computer time and computer availability, the Board has ordered a Univac DCT 2000 computer terminal for delivery in mid-1967. This terminal is scheduled to be linked to the large computer installation at the Central Data Processing Service Bureau in Ottawa and to other large

computing centres in Canada. This is expected to reduce considerably the turn-around time presently experienced in the Board's computer work which will, in turn, increase the efficiency and progress of the Board's work in operations research.

ADMINISTRATION

The Board's functions were carried out, during the year, with an establishment of 121 positions including the five Board Members and Secretary. This was augmented by six positions to 127 during the course of the fiscal period 1966-67. Appropriations were provided in an amount of \$1,133,000 of which \$930,000 was for salaries and \$203,000 for all other expenses.

Apart from normal administrative routines, special attention was given to the recruitment of staff in professional positions which have been particularly difficult to fill. A combination of attendance at French language training programs by a number of the staff members, together with added emphasis on the recruitment of bilingual personnel, has raised the language proficiency level of the staff.

APPENDIX I

CERTIFICATES - SECTION 44

APPLICANT	FACILITIES	ESTIMATED COST	HEARD	ISSUED	CERTIFICATE NO.
<u>GAS PIPE LINES</u>					
1. TRANS-CANADA PIPE LINES LIMITED	APPROXIMATELY 40.6 MILES OF 16-INCH DIAMETER PIPE LINE IN ALBERTA AND SASKATCHEWAN	\$ 2,785,000.00	20 JUNE 1966	21 JULY 1966	GC-28
2. TRANS-CANADA PIPE LINES LIMITED	A) APPROXIMATELY 88.9 MILES OF 34-INCH DIAMETER PIPE LINE AND ADDITIONAL COMPRESSION FACILITIES AT TWO EXISTING COMPRESSOR STATIONS IN SASKATCHEWAN AND MANITOBA B) APPROXIMATELY 12.1 MILES OF 24-INCH DIAMETER PIPE LINE IN ONTARIO				
3. TRANS-CANADA PIPE LINES LIMITED	A) <u>1966 CONSTRUCTION - NEW PIPE LINE</u>	\$ 20,294,000.00	1 MARCH 1966	26 JULY 1966	GC-29
	(1) 0.2 MILES OF DUAL 24-INCH OD PIPE LINE (RIVER CROSSING) IN ONTARIO	\$ 3,171,000.00			
	(2) 13.8 MILES OF 36-INCH OD PIPE LINE IN ONTARIO				
	B) <u>1967 CONSTRUCTION</u>				
	(1) 6.5 MILES OF 10.750-INCH OD PIPE LINE IN ONTARIO	\$ 34,643,000.00			
	(2) 130 MILES OF 34-INCH OD PIPE LINE IN SASKATCHEWAN AND MANITOBA				
	(3) APPROXIMATELY 7-MILES OF 36-INCH DIAMETER PIPE LINE IN MANITOBA				
	(4) AN ADDITIONAL COMPRESSOR STATION IN ONTARIO				
	(5) RELOCATION OF COMPRESSION FACILITIES FROM ONTARIO TO SASKATCHEWAN				
	(6) ADDITIONAL COMPRESSION FACILITIES IN SASKATCHEWAN AND ONTARIO				
			COMMENCED 1 MARCH 1966	28 OCT. 1966	GC-30

APPENDIX II

EXEMPTION ORDERS PURSUANT TO SECTION 49

CLASS "B" CONSTRUCTION

GAS PIPE LINES

- 1) WESTCOAST TRANSMISSION COMPANY LIMITED, A FIELD COMPRESSOR STATION AND WORKS CONNECTED THEREWITH TO BE ADDED TO ITS PIPE LINE SYSTEM IN BRITISH COLUMBIA, ESTIMATED COST \$2,855,600.00, ORDER NO. XG-1-66, DATED THE 10TH DAY OF FEBRUARY, 1966.
- 2) WESTCOAST TRANSMISSION COMPANY LIMITED, COMPRESSOR STATION AND WORKS CONNECTED THEREWITH TO BE ADDED TO ITS PIPE LINE SYSTEM IN BRITISH COLUMBIA, ESTIMATED COST \$1,820,000.00, ORDER NO. XG-2-66, DATED THE 10TH DAY OF FEBRUARY, 1966.
- 3) TRANS-CANADA PIPE LINES LIMITED, FOR APPROXIMATELY 1770-Feet OF 10.75-INCH DIAMETER 'CONNECTING LINE' AND METER STATION IN ONTARIO, ESTIMATED COST \$83,300.00, ORDER NO. XG-3-66, DATED THE 10TH DAY OF MARCH, 1966.
- 4) WESTCOAST TRANSMISSION COMPANY LIMITED, COMPRESSOR STATION AND WORKS TO BE ADDED TO ITS PIPE LINE SYSTEM IN BRITISH COLUMBIA, ESTIMATED COST \$1,834,400.00, ORDER NO. XG-4-66, DATED THE 10TH DAY OF MARCH, 1966.
- 5) WESTCOAST TRANSMISSION COMPANY LIMITED, FIELD COMPRESSOR STATION AND WORKS TO BE ADDED TO ITS PIPE LINE SYSTEM IN BRITISH COLUMBIA, ESTIMATED COST \$416,500.00, ORDER NO. XG-5-66, DATED THE 24TH DAY OF MARCH, 1966.
- 6) WESTCOAST TRANSMISSION COMPANY LIMITED, FIELD COMPRESSOR STATION AND WORKS TO BE ADDED TO ITS PIPE LINE SYSTEM IN BRITISH COLUMBIA, ESTIMATED COST \$818,500.00, ORDER NO. XG-6-66, DATED THE 24TH DAY OF MARCH, 1966.
- 7) WESTCOAST TRANSMISSION COMPANY LIMITED, ADDITIONAL COMPRESSION FACILITIES TO BE ADDED AT THREE EXISTING COMPRESSOR STATIONS IN BRITISH COLUMBIA, ESTIMATED COST \$3,665,500.00, ORDER NO. XG-7-66, DATED THE 26TH DAY OF MAY, 1966.
- 8) TRANS-CANADA PIPE LINES LIMITED, ADDITIONAL COMPRESSION FACILITIES TO BE ADDED AT TWO EXISTING COMPRESSOR STATIONS IN ONTARIO, ESTIMATED COST \$1,401,400.00, ORDER NO. XG-8-66, DATED THE 21ST DAY OF JUNE, 1966.
- 9) TRANS-CANADA PIPE LINES LIMITED, EIGHT METER STATIONS TO BE INSTALLED AT VARIOUS LOCATIONS IN SASKATCHEWAN, MANITOBA AND ONTARIO, ESTIMATED COST \$229,500.00, ORDER NO. XG-9-66, DATED THE 25TH DAY OF AUGUST, 1966.
- 10) PEACE RIVER TRANSMISSION COMPANY LIMITED, CHANGE IN ITS PIPE LINE SYSTEM IN BRITISH COLUMBIA, ESTIMATED COST \$5,500.00, ORDER NO. XG-10-66, DATED THE 14TH DAY OF OCTOBER, 1966.
- 11) TRANS-CANADA PIPE LINES LIMITED, FOR AN EXTENSION OF APPROXIMATELY 5.3 MILES (TO BE ADDED TO THE PIPE LINE APPROVED BY CERTIFICATE GC-29), IN ONTARIO, ESTIMATED COST \$721,000.00, ORDER NO. XG-11-66, DATED THE 3RD DAY OF OCTOBER, 1966.
- 12) TRANS-CANADA PIPE LINES LIMITED, NEW METER STATION IN ONTARIO, ESTIMATED COST \$23,400.00, ORDER NO. XG-12-66, DATED THE 17TH DAY OF NOVEMBER, 1966.
- 13) WESTCOAST TRANSMISSION COMPANY LIMITED, NEW METER STATION IN BRITISH COLUMBIA, ESTIMATED COST \$26,000.00, ORDER NO. XG-13-66, DATED THE 8TH DAY OF DECEMBER, 1966.

APPENDIX II (CONT'D)

EXEMPTION ORDERS PURSUANT TO SECTION 49

CLASS "B" CONSTRUCTION

OIL PIPE LINES

- 1) INTERPROVINCIAL PIPE LINE COMPANY, REPLACEMENT OF CERTAIN EXISTING PUMPING FACILITIES, AND CONSTRUCTION OF CERTAIN ADDITIONAL FACILITIES TO EFFECT REMOTE OPERATION OF CERTAIN EXISTING PUMPING STATIONS IN ALBERTA, SASKATCHEWAN AND MANITOBA, ESTIMATED COST, \$4,047,000.00, ORDER NO. X0-1-66, DATED THE 2ND DAY OF JUNE, 1966.
- 2) MONTREAL PIPE LINE COMPANY LIMITED, ADDITIONAL COMPRESSION AND METERING FACILITIES IN QUEBEC, ESTIMATED COST, \$472,000.00, ORDER NO. X0-2-66, DATED THE 14TH DAY OF JULY, 1966
- 3) INTERPROVINCIAL PIPE LINE COMPANY, TWO ADDITIONAL PUMPING STATIONS, ONE EACH IN ALBERTA AND SASKATCHEWAN, ESTIMATED COST, \$220,430.00, ORDER NO. X0-3-66, DATED THE 4TH DAY OF AUGUST, 1966.
- 4) INTERPROVINCIAL PIPE LINE COMPANY, CERTAIN INTERCONNECTING FACILITIES AT A PUMPING STATION IN ALBERTA, ESTIMATED COST, \$242,000.00, ORDER NO. X0-4-66, DATED THE 8TH DAY OF SEPTEMBER, 1966.
- 5) INTERPROVINCIAL PIPE LINE COMPANY, CERTAIN ADDITIONAL PUMPING FACILITIES AT AN EXISTING PUMP STATION IN ONTARIO, ESTIMATED COST, \$37,000.00, ORDER NO. X0-5-66, DATED THE 15TH DAY OF SEPTEMBER, 1966.
- 6) INTERPROVINCIAL PIPE LINE COMPANY, CERTAIN ADDITIONAL PUMPING FACILITIES AT AN EXISTING PUMP STATION IN MANITOBA, ESTIMATED COST, \$50,000.00, ORDER NO. X0-6-66, DATED THE 29TH DAY OF SEPTEMBER, 1966.
- 7) MONTREAL PIPE LINE COMPANY, TIE-OVER CONNECTION IN QUEBEC, ESTIMATED COST, \$6,000.00, ORDER NO. X0-7-66, DATED THE 17TH DAY OF NOVEMBER, 1966.
- 8) INTERPROVINCIAL PIPE LINE COMPANY, CERTAIN ADDITIONAL PUMPING FACILITIES AT AN EXISTING PUMP STATION IN ONTARIO, ESTIMATED COST, \$29,000.00, ORDER NO. X0-8-66, DATED THE 1ST DAY OF DECEMBER, 1966.

APPENDIX II (CONT'D)

EXEMPTION ORDERS PURSUANT TO SECTION 49

CLASS "C" CONSTRUCTION

GAS PIPE LINES

- 1) ALBERTA NATURAL GAS COMPANY, FOR CERTAIN MISCELLANEOUS FACILITIES TO BE ADDED TO ITS EXISTING PIPE LINE SYSTEM IN ALBERTA AND BRITISH COLUMBIA, ESTIMATED COST, \$134,890.00, ORDER NO. XGM-1-66, DATED THE 10TH DAY OF MARCH, 1966.
- 2) WESTCOAST TRANSMISSION COMPANY LIMITED, FOR CERTAIN MISCELLANEOUS FACILITIES TO BE ADDED TO ITS EXISTING PIPE LINE SYSTEM IN ALBERTA AND BRITISH COLUMBIA, ESTIMATED COST, \$590,950.00, ORDER NO. XGM-2-66, DATED THE 1ST DAY OF APRIL, 1966.
- 3) PETROLEUM TRANSMISSION COMPANY, FOR CERTAIN MISCELLANEOUS FACILITIES TO BE ADDED TO ITS EXISTING PIPE LINE SYSTEM IN ALBERTA, SASKATCHEWAN AND MANITOBA, ESTIMATED COST, \$15,000.00, ORDER NO. XGM-3-66, DATED THE 14TH DAY OF APRIL, 1966.
- 4) PEACE RIVER TRANSMISSION COMPANY LIMITED, FOR CERTAIN MISCELLANEOUS FACILITIES TO BE ADDED TO ITS EXISTING PIPE LINE SYSTEM IN ALBERTA AND BRITISH COLUMBIA, ESTIMATED COST, \$1,300.00, ORDER NO. XGM-4-66, DATED THE 30TH DAY OF JUNE, 1966.
- 5) TRANS-CANADA PIPE LINES LIMITED, FOR CERTAIN MISCELLANEOUS FACILITIES TO BE ADDED TO ITS EXISTING PIPE LINE SYSTEM IN ALBERTA, SASKATCHEWAN, MANITOBA, ONTARIO AND QUEBEC, ESTIMATED COST, \$5,555,526.00, ORDER NO. XGM-5-66, DATED THE 29TH DAY OF SEPTEMBER, 1966
- THIS ITEM WAS AMENDED, ESTIMATED COST \$1,183,680.00, ORDER NO. AO-1-XGM-2-66, DATED THE 10TH DAY OF NOVEMBER, 1966.

OIL PIPE LINES

- 1) TRANS-NORTHERN PIPE LINE COMPANY, FOR CERTAIN MISCELLANEOUS FACILITIES TO BE ADDED TO ITS EXISTING PIPE LINE SYSTEM IN ONTARIO AND QUEBEC, ESTIMATED COST, \$260,000.00, ORDER NO. XOM-1-66, DATED THE 24TH DAY OF FEBRUARY, 1966.
- 2) TRANS MOUNTAIN OIL PIPE LINE COMPANY, FOR CERTAIN MISCELLANEOUS FACILITIES TO BE ADDED TO ITS EXISTING PIPE LINE SYSTEM IN ALBERTA AND BRITISH COLUMBIA, ESTIMATED COST, \$492,228.00, ORDER NO. XOM-2-66, DATED THE 3RD DAY OF MARCH, 1966, AS AMENDED BY ORDER NO. AO-1-XOM-2-66, DATED THE 1ST DAY OF APRIL, 1966.
- 3) MONTREAL PIPE LINE COMPANY LIMITED, FOR CERTAIN MISCELLANEOUS FACILITIES TO BE ADDED TO ITS EXISTING PIPE LINE SYSTEM IN QUEBEC, ESTIMATED COST, \$147,500.00, ORDER NO. XOM-3-66, DATED THE 10TH DAY OF MARCH, 1966.
- 4) WESTSPUR PIPE LINE COMPANY, FOR CERTAIN MISCELLANEOUS FACILITIES TO BE ADDED TO ITS EXISTING PIPE LINE SYSTEM IN SASKATCHEWAN AND MANITOBA, ESTIMATED COST, \$419,000.00, ORDER NO. XOM-4-66, DATED THE 10TH DAY OF MARCH, 1966.
- 5) INTERPROVINCIAL PIPE LINE COMPANY, FOR CERTAIN MISCELLANEOUS FACILITIES TO BE ADDED TO ITS EXISTING PIPE LINE SYSTEM IN ALBERTA, SASKATCHEWAN, MANITOBA AND ONTARIO, ESTIMATED COST, \$678,900.00, ORDER NO. XOM-5-66, DATED THE 24TH DAY OF MARCH, 1966.
- 6) TRANS MOUNTAIN OIL PIPE LINE, FOR CERTAIN MISCELLANEOUS FACILITIES TO BE ADDED TO ITS EXISTING PIPE LINE SYSTEM IN ALBERTA AND BRITISH COLUMBIA, ESTIMATED COST, \$244,420.00, ORDER NO. XOM-6-66, DATED THE 29TH DAY OF SEPTEMBER, 1966.

APPENDIX III

LICENCES - EXPORTS OF ELECTRICAL POWER & ENERGY - SECTION 82

APPLICANT	CLASS	KILOWATTS (THOUSANDS)	ANNUAL KILOWATTHOURS (MILLIONS)	TERM	APPLICATION HEARD	ISSUED	LICENCE NO.
1. FRASER COMPANIES LIMITED	FIRM	15	120	1/2/66 to 31/12/70	7/12/65	21/1/66	EL-37
2. FRASER COMPANIES LIMITED	INTERRUPTIBLE	-	30	1/2/66 to 31/12/66	7/12/65	21/1/66	EL-38

APPENDIX 111 (CONT'D.)

ORDERS - EXPORTS OF ELECTRICAL POWER AND ENERGY PART VI REGULATION SECTION 6A

APPLICANT	CLASS	KILOWATTS	ANNUAL KILOWATTHOURS (MILLIONS)	TERM FROM DATE OF ISSUE - MONTHS	ISSUED	ORDER NUMBER
1. QUEBEC HYDRO-ELECTRIC COMMISSION	FIRM	17	0.100	12	7/4/66	EL0-49
2. QUEBEC HYDRO-ELECTRIC COMMISSION	FIRM	12	0.025	12	7/4/66	EL0-50
3. QUEBEC HYDRO-ELECTRIC COMMISSION	FIRM	8	0.025	12	7/4/66	EL0-51
4. QUEBEC HYDRO-ELECTRIC COMMISSION	FIRM	35	0.085	12	7/4/66	EL0-52
5. QUEBEC HYDRO-ELECTRIC COMMISSION	FIRM	3	0.003	12	7/4/66	EL0-53
6. QUEBEC HYDRO-ELECTRIC COMMISSION	FIRM	18	0.065	12	7/4/66	EL0-54
7. QUEBEC HYDRO-ELECTRIC COMMISSION	FIRM	2	0.0007	12	7/4/66	EL0-55
8. THE CANADIAN TRANSIT COMPANY	FIRM	100	0.025	12	14/7/66	EL0-56
9. NEW BRUNSWICK ELECTRIC POWER COMMISSION	FIRM	100	0.100	12	15/9/66	EL0-57
10. " " " " " "	FIRM	12	0.015	12	15/9/66	EL0-58
11. " " " " " "	FIRM	25	0.010	12	15/9/66	EL0-59
12. BRITISH COLUMBIA HYDRO AND POWER AUTHORITY	FIRM	100	0.300	12	17/11/66	EL0-60
13. QUEBEC HYDRO ELECTRIC COMMISSION	FIRM	25	0.080	12	24/11/66	EL0-61
14. THE DETROIT & WINDSOR SUBWAY CO.	FIRM	300	1.0	12	1/12/66	EL0-62
15. WEST KOOTENAY POWER & LIGHT CO.	FIRM	20	0.050	36	15/12/66	EL0-63

OTHER ORDERS ISSUED BY THE BOARD RELATIVE TO ELECTRIC POWER DIVISION

APPLICANT	ASSOCIATED LICENCE ORDER OR CERTIFICATE	ISSUED	NUMBER
<u>AMENDING ORDERS</u>			
1. BRITISH COLUMBIA HYDRO AND POWER AUTHORITY	EL-9	7/4/66	A0-2-EL-9
2. NEW BRUNSWICK ELECTRIC POWER COMMISSION	EL-24	20/4/66	A0-1-EL-24
3. " " " "	EL-26	20/4/66	A0-1-EL-26
4. BRITISH COLUMBIA HYDRO & POWER AUTHORITY	EL-9	2/6/66	A0-3-EL-9
5. COMINCO LIMITED	EL-20	28/7/66	A0-1-EL-20
6. BRITISH COLUMBIA HYDRO & POWER AUTHORITY	EL-8	1/9/66	A0-1-EL-8
7. SOUTHERN CANADA POWER COMPANY	EL-30	22/12/66	A0-1-EL-30
8. SOUTHERN CANADA POWER COMPANY	EL-31	22/12/66	A0-1-EL-31
9. QUEBEC HYDRO-ELECTRIC COMMISSION	EL-54	1/12/66	A0-1-EL-54
<u>EMERGENCY ORDER</u>			
10. COMINCO LIMITED	EL-20	7/1/66	EO-1-66
<u>MISCELLANEOUS ORDERS</u>			
11. BRITISH COLUMBIA HYDRO AND POWER AUTHORITY	EC-111-4, EL-8 & EL-9	20/5/66	M0-11-66
12. BRITISH COLUMBIA HYDRO AND POWER AUTHORITY	EC-28 & EC-29	20/5/66	M0-12-66
13. CEDARS RAPIDS TRANSMISSION COMPANY	EL-29	28/12/66	M0-32-66

LICENCES AND ORDERS - EXPORTS OF NATURAL GAS AND BUTANES

A. LICENCES - NATURAL GAS EXPORT - SECTION 82

APPLICANT	LICENCE NUMBER	ISSUED	TERM		MAXIMUM EXPORT VOLUMES			POINT OF EXPORT
			FROM	TO	DAILY (MCF)	ANNUAL (MMCF)	TERM (MMCF)	
1. TRANS-CANADA PIPE LINES LIMITED	GL-20	15/8/66		31/10/90	87,600	32,100	765,000	EMERSON, MANITOBA
2. TRANS-CANADA PIPE LINES LIMITED	GL-21	15/8/66		31/10/90	677,000	247,782	6,000,000	EMERSON, MANITOBA SAULT STE. MARIE AND SARNIA, ONTARIO
3. TRANS-CANADA PIPE LINES LIMITED	GL-22	15/8/66		31/10/67	-	-	3,000	EMERSON, MANITOBA

B. ORDERS AMENDING EXISTING NATURAL GAS EXPORT LICENCES ISSUED BY THE BOARD - SECTION 17

APPLICANT	AMENDING ORDER NUMBER	ISSUED	TERM		MAXIMUM EXPORT VOLUMES			POINT OF EXPORT
			FROM	TO	DAILY (MCF)	ANNUAL (MMCF)	TERM (MMCF)	
1. TRANS-CANADA PIPE LINES LIMITED	A01-GL-20	1/11/66						(A) ADD CONDITION (2A) RESPECTING AN AGREEMENT WITH HER MAJESTY THE QUEEN IN RIGHT OF CANADA
2. TRANS-CANADA PIPE LINES LIMITED	A01-GL-21	1/11/66						(A) AMENDMENT RESPECTING AN AGREEMENT WITH HER MAJESTY THE QUEEN IN RIGHT OF CANADA
3. TRANS-CANADA PIPE LINES LIMITED	A01-GL-22	1/11/66						(B) AMENDMENT RESPECTING RATES TO BE PAID FOR TRANSPORTATION FROM EMERSON, MANITOBA TO SAULT STE. MARIE AND SARNIA, ONTARIO.
4. ALBERTA AND SOUTHERN GAS CO. LTD.	A02-GL-3	7/4/66						(A) AMENDMENT RESPECTING AN AGREEMENT WITH HER MAJESTY THE QUEEN IN RIGHT OF CANADA
5. ALBERTA AND SOUTHERN GAS CO. LTD.	A01-GL-16	7/4/66						(A) AMENDMENT RESPECTING DEFICIENCIES IN GAS EXPORTS
6. TRANS-CANADA PIPE LINES LIMITED	A01-GL-18	7/1/66						(A) AMENDMENT REDUCING THE AUTHORIZED VOLUMES FOR EXPORT
7. TRANS-CANADA PIPE LINES LIMITED	A02-GL-18	3/11/66						(A) AMENDMENT EXTENDING TERM OF INTERRUPTIBLE EXPORTS TO 31 OCT. 67

C. ORDER - BUTANES EXPORT - PART VI REGULATIONS - SECTION 16A

APPLICANT	ORDER NO.	ISSUED	TERM		MAXIMUM VOLUME BARRELS	POINT OF EXPORT
			FROM	TO		
1. HUDSON'S BAY OIL AND GAS COMPANY LTD.	601-66	14/ 1/66	1/ 3/66	28/ 2/67	182,500	CARWAY, ALBERTA VIA AURORA PIPE LINE COMPANY
2. IMPERIAL OIL LIMITED	603-66	4/ 8/66	13/ 9/66	12/ 9/66	365,000	GRETNA, MANITOBA VIA INTER-PROVINCIAL PIPE LINE COMPANY
3. TEXACO EXPLORATION COMPANY	604-66	11/ 8/66	15/ 9/66	14/ 8/67	365,000	HUNTINGDON, B.C. VIA TRANS-MOUNTAIN OIL PIPE LINE COMPANY
4. MOBIL OIL CANADA, LTD.	605-66	18/ 8/66	1/ 1/67	31/12/67	365,000	HUNTINGDON, B.C. VIA TRANS-MOUNTAIN OIL PIPE LINE COMPANY

APPENDIX V

LICENCES AND ORDERS - IMPORT OF NATURAL GAS

A. LICENCES - NATURAL GAS - IMPORT - SECTION 82

APPLICANT	LICENCE NUMBER	ISSUED	TERM FROM	TO	DAILY (MCF)	MAXIMUM ANNUAL (MMCF)	IMPORT VOLUMES TERM (MMCF)	POINT OF IMPORT
1. TECUMSEH GAS STORAGE LIMITED	GLI-3	12/1/66	FIRST DEL.	1/8/69	20,000	3,000	6,000	OJIBWAY, ONTARIO
2. TRANS-CANADA PIPE LINES LIMITED	GLI-4	15/8/66		31/10/67	-	59,245	-	
			1/11/67	31/10/68	-	23,058	-	SARNIA, ONTARIO

B. ORDERS AMENDING EXISTING NATURAL GAS LICENCES ISSUED BY THE BOARD

APPLICANT	ORDER NUMBER	ISSUED	COMMENTS
1. TRANS-CANADA PIPE LINES LIMITED	A0-1-GLI-2	22/7/66	(A) MAXIMUM DAILY LIMITATIONS REMOVED
2. TRANS-CANADA PIPE LINES LIMITED	A0-2-GLI-2	28/10/66	(A) AMENDMENT INCREASED VOLUME TO BE IMPORTED DURING PERIOD 1 NOVEMBER 1966 TO 1 NOVEMBER 1967 TO 30.4 BCF AND TOTAL VOLUME TO 86.5 BCF
3. TRANS-CANADA PIPE LINES LIMITED	A0-1-GLI-4	1/11/66	(A) AMENDMENT RESPECTING AN AGREEMENT WITH HER MAJESTY THE QUEEN IN RIGHT OF CANADA

C. ORDERS - GAS - PART VI REGULATIONS SECTION 6B

APPLICANT	ORDER NUMBER	ISSUED	TERM FROM	TO	DAILY (MCF)	MAXIMUM ANNUAL (MMCF)	IMPORT VOLUMES TERM (MMCF)	POINT OF IMPORT
1. BORDER UTILITIES LTD.	G0-2-66	2/6/66	2/6/66	14/9/85	1,000	-	-	COUTTS, ALBERTA
2. MILK RIVER GAS COMPANY LIMITED	G0-6-66	22/9/66	22/9/66	14/9/85	1,000	-	-	COUTTS, ALBERTA

APPENDIX V (CONT'D)

LICENCES AND ORDERS - IMPORT OF NATURAL GAS

D. ORDER - GAS - PART VI REGULATION - SECTION 17

APPLICANT	ORDER NUMBER	ISSUED	FROM	TERM TO	MAXIMUM DAILY (MCF)	IMPORT ANNUAL (MMCF)	VOLUMES TERM (MMCF)	POINT OF IMPORT
1. UNION GAS COMPANY OF CANADA, LIMITED	E0-2-66	29/9/66	29/9/66	1/5/67	50,000	-	8,000	TEMPORARY IMPORT AT OJIBWAY, ONTARIO

APPENDIX VI

EXPORTS OF CRUDE OIL AND EQUIVALENT TO THE UNITED STATES (BARRELS OF 35 CANADIAN GALLONS)

REFINERY

U.S. DISTRICTS I-IV

ASHLAND OIL AND REFINING CO.
BAY REFINING CO.
CONTINENTAL OIL CO.
GREAT NORTHERN OIL CO.
GULF OIL CORP.
INTERNATIONAL REFINERIES INC.
LAKEHEAD PIPE LINE CO. INC.
LEONARD REFINERIES, INC.
LEONARD REFINERIES, INC.
MARATHON OIL CO.
MOBIL OIL CO.
MOBIL OIL CO.
MURPHY CORP.
NORTHWESTERN REFINING CO.
OSCEOLA REFINING CO.
THE PERMAN CORP.
SOUTH PETROLEUM CO.
UNION OIL CO. OF CALIFORNIA
OTHERS

TONAWANDA, NEW YORK
BAY CITY, MICHIGAN
SILLINGS, MONTANA
ST. PAUL, MINNESOTA
TOLEDO, OHIO
WRENSHALL, MINNESOTA
SUPERIOR, WISCONSIN
ALMA, MICHIGAN
PORT HURON, MICHIGAN
DETROIT, MICHIGAN
BUFFALO, NEW YORK
CASPER, WYOMING
SUPERIOR, WISCONSIN
ST. PAUL, MINNESOTA
WEST BRANCH, MICHIGAN
DENVER, COLORADO
TOLEDO, OHIO
CUT BANK, MONTANA

LOCATION

1965

BBL

B/d

5,281,501
3,353,211
4,447,344
13,379,380
1,985,820
5,590,423
201,278
909,432
-
4,398,563
238,572
4,598,319
5,828,045
972,509
-
4,398,367
24,380
270,495

14,470
9,214
12,185
36,657
5,441
15,316
551
2,492
-
12,051
654
12,598
15,967
2,664
-
12,052
57
741

55,888,939

153,120

67,802,179

185,758

U.S. DISTRICT V

MOBIL OIL CO.
SHELL OIL CO.
TEXACO INC.

FERDALE, WASHINGTON
ANACORTES, WASHINGTON
ANACORTES, WASHINGTON

12,445,500
24,163,844
22,432,244

34,097
66,202
61,457

TOTAL DISTRICT V

59,041,588

142,620

161,756

TOTAL EXPORTS

126,843,767

295,740

347,514

1966

B/d

BBL

8,746,020
3,530,238
4,634,475
15,156,085
2,134,256
5,179,538
205,726
793,180
1,019,000
2,792
1,015
5,769,728
188,844
4,597,139
6,824,561
540,554
134,544
7,292,040
18,120
238,531

23,962
9,672
12,597
41,523
5,347
14,190
564
2,173
2,792
1,015
15,807
517
12,567
14,397
1,730
369
19,979
59
655

67,802,179

185,758

12,445,500
24,163,844
22,432,244

34,097
66,202
61,457

59,041,588

161,756

126,843,767

347,514

SUBSISTING LICENCES TO EXPORT NATURAL GAS

	COMPANY	LICENCE NUMBER	POINT OF EXIT	TERM OF LICENCE		MAXIMUM DAILY (MMCF)	EXPORT ANNUAL (MMCF)	VOLUMES TERM (MMCF)
				FROM	TO			
1.	TRANS-CANADA PIPE LINES LIMITED	GL-1(AO-2)	EMERSON, MANITOBA	11/ 4/60	14/ 5/81	223,000	74,000	1,410,000
2.	TRANS-CANADA PIPE LINES LIMITED	GL-2(AO-1)	NIAGARA FALLS, ONTARIO	11/ 4/60	31/12/66	96,900	20,662.5	-
3.	ALBERTA AND SOUTHERN GAS CO. LIMITED	GL-3(AO-3)	KINGSGATE, B.C.	31/10/61	31/10/86	458,750	153,270	3,826,000
4.	WESTCOAST TRANSMISSION CO. LIMITED	GL-4(AO-2)	KINGSGATE, B.C.	10/12/61	10/12/81	152,000	51,000	1,020,000
5.	CANADIAN-MONTANA PIPE LINE CO.	GL-5(AO-2)	CARDSTON, ALTA.	31/10/61	31/10/86	36,000	10,950	273,750
6.	NIAGARA GAS TRANSMISSION LIMITED	GL-6(AO-3)	CORNWALL, ONTARIO	31/ 5/60	30/ 6/80	10,700	3,765.7	73,521.25
7.	PATRICK T. BUCKLEY	GL-7(AO-1)	COQUITZ, ALTA.	22/ 6/60	31/ 5/68	1.3*	10.0	-
8.	CANADIAN-MONTANA PIPE LINE CO.	GL-8(AO-1)	ADEN, ALTA.	1/ 9/60	14/ 5/74	99,460	10,692	220,000
9.	ALBERTA AND SOUTHERN GAS CO. LIMITED	GL-9(AO-1)	KINGSGATE, B.C.	1/11/65	31/10/87	113,125	37,415	-
10.	CANADIAN-MONTANA PIPE LINE CO.	GL-10	ADEN, ALTA.	1/11/67	31/10/89	226,250	74,820	1,614,000
11.	TRANS-CANADA PIPE LINES LIMITED	GL-11(AO-2)	EMERSON, MANITOBA	22/11/65	31/10/87	25,000	8,000	-
12.	TRANS-CANADA PIPE LINES LIMITED	GL-12	PHILIPSBURG, QUE.	1/11/65	31/10/89	17,700	5,500	138,500
13.	TRANS-CANADA PIPE LINES LIMITED	GL-13(AO-1)	EMERSON, MANITOBA	1/11/65	31/10/89	87,500	32,100	705,000

* NOT MORE THAN 1.3 MMCF IN ANY ONE MONTH

** THE INTERRUPTIBLE VOLUME OF 25 MMCFD TERMINATES WHEN THE FIRM VOLUMES BEGIN OR ON 31 OCT/67, WHICHEVER IS THE EARLIER DATE

*** DATE TO BE FIXED BY THE BOARD

APPENDIX VII (CONT'D.)

SUBSISTING LICENCES AND ORDERS TO EXPORT BUTANES

	COMPANY	LICENCE OR ORDER NUMBER	POINT OF EXIT	TERM OF LICENCE OR ORDER		MAXIMUM DAILY BARRELS	EXPORT ANNUAL BARRELS	VOLUME TERM BARRELS
				FROM	TO			
14.	TRANS-CANADA PIPE LINES LIMITED	SL-21 (A0-1) 0000	EMERSON, MANITOBA	***	31/10/60	677,000	247,782	6,000,000
15.	TRANS-CANADA PIPE LINES LIMITED	SL-22 (A0-1)	EMERSON, MANITOBA	***	31/10/67	—	—	5,000
16.	WESTCOAST TRANSMISSION CO. LTD.	PC1955-958	HUNTINGDON, S.C.	1/11/66	31/10/67	—	125,000	—
				1/11/67	3/10/77	—	100,000	—
17.	SHELL CANADA LTD.	SL-44	HUNTINGDON, S.C.	15/ 9/63	14/ 9/69	—	2,200,000	11,000,000
18.	SOCOMY MOBIL OIL OF CANADA LTD.	SO-1-65	HUNTINGDON, S.C.	1/ 1/66	31/12/66	—	365,000	365,000
19.	TEXACO EXPLORATION CO.	GO-2-65	HUNTINGDON, S.C.	15/ 9/65	14/ 9/66	—	365,000	365,000
20.	HUDSON'S BAY OIL & GAS CO. LTD.	GO-4-65	SARNIA, ALTA.	1/ 3/65	28/ 2/66	—	182,500	182,500
21.	IMPERIAL OIL LTD.	GO-5-65	GREYNA, MANITOBA	13/ 9/65	12/ 9/66	—	365,000	365,000
22.	HUDSON'S BAY OIL & GAS CO. LTD.	GO-4-66	SARNIA, ALTA.	1/ 3/66	28/ 2/67	—	182,500	182,500
23.	IMPERIAL OIL LTD.	GO-3-66	GREYNA, MANITOBA	13/ 9/66	12/ 9/67	—	365,000	365,000
24.	TEXACO EXPLORATION CO.	GO-4-66	HUNTINGDON, S.C.	15/ 9/66	14/ 9/67	—	365,000	365,000
25.	MOBIL OIL CANADA LTD.	GO-5-66	HUNTINGDON, S.C.	1/ 1/67	31/12/67	—	365,000	365,000

*** DATE TO BE FIXED BY THE BOARD
 *** THIS LICENCE AUTHORIZES AN EXPORT AT EMERSON, MANITOBA WHICH MUST BE IMPORTED AT SARNIA AND SAULT STE. MARIE, ONTARIO TO SERVE THE
 *** EASTERN CANADIAN MARKET.

EXPORTS OF NATURAL GAS TO UNITED STATES UNDER SUBSISTING LICENCES

EXPORTER	MAXIMUM DAILY MWCF	MAXIMUM ANNUAL MWCF	CUMULATIVE TO 31/12/61 MWCF	1962 MWCF	1963 MWCF	1964 MWCF	1965 MWCF	1966 MWCF	CUMULATIVE EXPORTS MWCF	TOTAL AUTHORIZED EXPORTS MWCF	REMAINING UNDER LICENCE MWCF (A)
1. TRANS-CANADA PIPE LINES LIMITED GL-1 (A0-2)	223.00	74,000.0	71,624	61,954	62,785	71,366	73,987	73,763	415,479	1,410,000.0	994,521
2. TRANS-CANADA PIPE LINES LIMITED (B) GL-2 (A0-2)	96.90	20,662.5	-	-	-	-	-	-	-	20,662.5	20,662.5
3. ALBERTA & SOUTHERN GL-3 (A0-3)	458.75	153,270.0	7,819	118,393	128,065	146,068	152,599	159,560*	712,504	3,826,000	3,113,496
4. WESTCOAST TRANSMISSION GL-4 (A0-2)	152.00	51,000.0	1,065	35,550	40,261	43,507	42,627	43,576	206,586	1,020,000	813,414
5. CANADIAN-MONTANA GL-5 (A0-5)	36.00	10,950.0	102	10,070	10,838	10,736	10,927	10,904	53,577	273,750	220,173
6. NIAGARA GAS TRANSMISSION GL-6 (A0-3)	15.71	3,755.7	-	257	1,687	2,078	3,144	3,371	10,537	73,521.75	62,934.75
7. PATRICK T. BUCKLEY GL-7 (A0-1)	1.30(c)	10.0	6	3	3	2	2	2	18	80	62
8. CANADIAN-MONTANA GL-8 (A0-1)	99.46	19,882.0	22,600 ⁵	17,998	16,414	17,142	18,379	19,602	122,215 ⁵	220,000	97,785 ⁵
9. ALBERTA & SOUTHERN GL-16	225.25	74,830.0	-	-	-	-	-	6,253	6,253	1,614,000	1,607,747
10. CANADIAN-MONTANA GL-17 1/11/66 TO 31/10/67 1/11/67 TO 31/10/89	12.00 24.00	3,650.0 7,300.0	- -	- -	- -	- -	- -	813 -	613 -	109,500	109,887
11. TRANS-CANADA PIPE LINES LIMITED GL-18 (A0-2) INTERMITTIBLE FIRM	25.00 143.00	8,000.0 53,300.0	- -	- -	- -	- -	- -	3,385 (b) -	3,385 -	1,200,000	1,196,615
12. TRANS-CANADA PIPE LINES LIMITED GL-19	17.70	6,500.0	-	-	-	-	-	270	270	138,500	138,230
13. TRANS-CANADA PIPE LINES LIMITED (B) GL-20 (A0-2)	87.60	32,100.0	-	-	-	-	-	-	-	765,000	765,000

APPENDIX VIII CONT

EXPORTS OF NATURAL GAS TO UNITED STATES UNDER SUBSISTING LICENCES

EXPORTER	MAXIMUM DAILY MMCF	MAXIMUM ANNUAL MMCF	CUMULATIVE TO 31/12/61 MMCF	1962 MMCF	1963 MMCF	1964 MMCF	1965 MMCF	1966 MMCF	CUMULATIVE EXPORTS MMCF	TOTAL AUTHORIZED EXPORTS MMCF	REMAINING UNDER LICENCE MMCF (a)
14. TRANS-CANADA PIPE LINES LIMITED (b) GL-21 (AO-2)	677.00	247,792.0	-	-	-	-	-	-	-	6,000,000	6,000,000
15. TRANS-CANADA PIPE LINES LIMITED (b) GL-22 (AO-2)	-	-	-	-	-	-	-	-	-	3,000	3,000
16. WESTCOAST TRANSMISSION PC 1955 - 958	404.00 (E)	125,000.0	321,910	98,588	99,498	101,340	103,044	110,520	834,800	2,500,000	1,665,200
TOTAL	2,532.37	831,412.2	435,106	342,813	359,551	392,239	404,709	431,819	2,366,237 ^R	19,174,014.25	16,807,777.25 ^R

R REVISED

(A) IT MAY NOT BE POSSIBLE TO EXPORT ALL THE TOTAL REMAINING UNDER LICENCE BECAUSE OF PEAK DAY AND ANNUAL VOLUME RESTRICTIONS

(B) NO EXPORT AS OF 31 DECEMBER 1966

(C) 1.3 MMCF PER MONTH

(D) EXPORTS UNDER LICENCE GL-18 FOR 1966 WERE INTERRUPTIBLE GAS

(E) MAXIMUM DAILY RATE ALLOWED BY CONTRACT AND LETTER OF AGREEMENT

* MAXIMUM ANNUAL VOLUMES UNDER GL-3 (AO-3) PERMIT ANNUAL AVERAGING OF CUMULATIVE EXPORTS FOR YEARS FOLLOWING 1 NOVEMBER 1961

APPENDIX VIII

EXPORTS OF BUTANES TO UNITED STATES UNDER LICENCES
OR ORDERS IN EFFECT DURING 1966

EXPORTER	LICENCE OR ORDER NO.	EXPIRY DATE	MAXIMUM ANNUAL BARRELS	CUMULATIVE TO 31/12/64	1965 BARRELS	1966 BARRELS	CUMULATIVE EXPORTS BARRELS	TOTAL AUTHORIZED EXPORTS BARRELS	REMAINING UNDER LICENCE OR ORDER BARRELS
1. SHELL CANADA LIMITED	GL-14	14/ 9/68	2,200,000	1,536,626	1,591,758	1,610,363	4,738,747	11,000,000	6,261,253
2. SOCONY MOBIL OIL OF CANADA LIMITED	GO-1-65	31/12/66	365,000	-	-	317,651	317,651	365,000	(47,349)(1)
3. TEXACO EXPLORATION CO.	GO-2-65	14/ 9/66	365,000	-	107,744	121,890	229,634	365,000	(135,366)(1)
4. HUDSON'S BAY OIL AND GAS COMPANY LIMITED	GO-4-65	28/ 2/66	182,500	-	111,212	22,276	133,488	182,500	(49,012)(1)
5. IMPERIAL OIL LIMITED	GO-5-65	12/ 9/66	365,000	-	1,505 ^R	-	1,505	365,000	(363,495)(1)
6. HUDSON'S BAY OIL AND GAS COMPANY LIMITED	GO-1-66	28/ 2/67	182,500	-	-	92,027	92,027	182,500	90,473
7. IMPERIAL OIL LIMITED	GO-3-66	12/ 9/67	365,000	-	-	3,533	3,533	365,000	361,467
8. TEXACO EXPLORATION CO.	GO-4-66	14/ 9/67	365,000	-	-	140,472	140,472	365,000	224,528
9. MOBIL OIL CANADA, LTD.	GO-5-66	31/12/67	365,000	-	-	-	-	365,000	365,000
TOTAL				1,536,626	1,812,219	2,308,212	5,657,057	13,555,000	7,302,721(2)

(1) EXPIRES ON OR BEFORE 31 DECEMBER 1966 - NUMBERS IN BRACKETS REPRESENT VOLUMES WHICH WILL NOT BE EXPORTED.

(2) VOLUMES REMAINING UNDER LICENCES OR ORDERS AT 31 DECEMBER 1966.

R REVISED

APPENDIX IX

SUBSISTING LICENCES TO IMPORT NATURAL GAS

COMPANY	LICENCE NUMBER	POINT OF ENTRY	TERM OF LICENCE		MAXIMUM DAILY (Mcf)	EXPORT ANNUAL (MMcf)	VOLUMES TERA (MMcf)
			TO	FROM			
1. COUTTS GAS CO. LTD.	PC 1955-1742	COUTTS, ALTA.	18/11/55	31/3/75	-	120	-
2. UNION GAS CO. OF CANADA LIMITED	PC 1956-1848	OJIBWAY, ONTARIO	17/12/56	31/3/70	-	5,500	-
3. UNION GAS CO. OF CANADA LIMITED	GLI-1	OJIBWAY, ONTARIO	1/7/65	5/11/76	55,000	15,500	170,000
4. TRANS-CANADA PIPE LINES LIMITED	GLI-2(A0-2)	NIAGARA FALLS, ONT.	1/11/65	1/11/66	-	25,500	-
			1/11/66	1/11/67	-	30,400	-
			1/11/67	1/11/68	-	15,300	-
			1/11/68	1/11/69	-	10,200	-
			1/11/69	1/11/70	-	5,100	86,500
5. TECUMSEH GAS STORAGE LIMITED	GLI-3	OJIBWAY, ONTARIO	FIRST IMPORT	1/8/69	20,000	3,000	6,000
6. BORDER UTILITIES LIMITED	G0-2-66	COUTTS, ALTA.	2/6/66	14/9/85	1,000	-	-
7. TRANS-CANADA PIPE LINES LIMITED	GLI-4(A0-1)	SARNIA, ONTARIO	-	31/10/67	-	-	59,245
			1/11/67	1/11/68	-	-	23,058
8. MILK RIVER GAS COMPANY	G0-6-66	COUTTS, ALTA.	22/9/66	14/9/85	1,000	-	-
9. TRANS-CANADA PIPE LINES LIMITED	GL-21(A0-1)	SAULT STE. MARIE, SARNIA	-	31/10/90	677,000	247,782	6,000,000

IMPORTS OF NATURAL GAS FROM THE UNITED STATES UNDER SUBSISTING LICENCES/ORDERS

IMPORTER	MAXIMUM DAILY MCF	MAXIMUM ANNUAL MMCF	CUMULATIVE TO 31/12/60 MMCF	1961 MMCF	1962 MMCF	1963 MMCF	1964 MMCF	1965 MMCF	1966 MMCF	CUMULATIVE MMCF	TOTAL AUTHORIZED IMPORTS MMCF	REMAINING UNDER LICENCE MMCF (1)
COUTTS GAS COMPANY LIMITED (2) PC 1955 - 1742	-	120	358	75	73	78	91	99	17	791	2,340	1,549
BORDER UTILITIES LIMITED GO-2-66	1,000	-	-	-	-	-	-	-	26	26	7,045	7,019
MILK RIVER GAS COMPANY LIMITED GO-6-66	1,000	-	-	-	-	-	-	-	62	62	6,933	6,871
TECUMSEH GAS STORAGE LIMITED GLI-3	20,000	3,000	-	-	-	-	-	-	2,957	2,957	6,000	3,043
TRANS-CANADA PIPE LINE LIMITED GLI-2 (AO-2)	(SEE APPENDIX IX)	(SEE APPENDIX IX)	-	-	-	-	-	4,267 ^R	24,677	28,944 ^R	85,500	57,556 ^F
TRANS-CANADA PIPE LINE LIMITED GLI-4 (AO-2)	(SEE APPENDIX IX)	(SEE APPENDIX IX)	-	-	-	-	-	-	-	-	82,303	82,303
TRANS-CANADA PIPE LINE LIMITED GLI-21 (AO-2)	677,00	247,782	-	-	-	-	-	-	-	-	6,000,000	6,000,000
UNION GAS COMPANY OF CANADA, LIMITED GLI-1	55,000	15,500	-	-	-	-	-	7,856	10,140	17,996 ^R	170,000	152,004 ^R
UNION GAS COMPANY OF CANADA, LIMITED PC 1956 - 1848	-	5,500	37,813	5,407	5,404	5,410	5,404	5,404	5,404	70,246	118,000	47,754
UNION GAS COMPANY OF CANADA, LIMITED FD-2-66	50,000	-	-	-	-	-	-	-	1,320	1,320	8,000	6,680
TOTAL	-	-	38,171	5,482	5,477	5,488	5,495	17,626 ^R	43,283	121,022 ^R	6,479,121	6,359,099 ^R

(1) IT MAY NOT BE POSSIBLE TO IMPORT TOTAL REMAINING VOLUMES UNDER LICENCE BECAUSE OF MAXIMUM DAILY AND ANNUAL VOLUME RESTRICTIONS.

(2) LICENCE CANCELLED JANUARY 1966

P REVISED

APPENDIX XI

EXPORTS OF ELECTRICAL ENERGY TO THE UNITED STATES - CALENDAR YEAR - 1966 (THOUSANDS OF KILOWATTHOURS)

EXPORT LICENSEE & LICENCE NO.	LICENCE AUTHORIZATION		GROSS ENERGY EXPORTED		REPORTED DOLLAR VALUE OF	
	FIRM	INTERRUPTIBLE	FIRM	INTERRUPTIBLE	FIRM	INTERRUPTIBLE
1. MAINE & NEW BRUNSWICK ELECT. CO.	250,000	25,000	107,228	7,534	\$ 982,524.00	\$ 13,305.00
2. FRASER COMPANIES	8,750		9,050		85,975.00	
	120,000		85,219		809,580.50	
3. NEW BRUNSWICK ELECTRIC POWER COMM.	16,000	30,000	2,159	16,271	20,857.02	154,574.50
		115,000		36,115		248,204.35
		115,000		47,543		431,820.79
	105,000		-			
	125		86		3,042.97	
EL0-57 TO 59			203,742	107,453	1,901,979.49	852,904.64
SUB TOTAL NEW BRUNSWICK						1,213,315.90
4. CEDARS RAPIDS TRANSMISSION CO.		1,200,000	268	422,484	5,273.46	67,867.95
5. QUEBEC HYDRO-ELECTRIC COMM.	384	61,250		11,615	174,858.25	1,281,183.85
6. SOUTHERN CANADA POWER CO.	19,850		13,989	434,099	180,131.71	
			14,257			
SUB TOTAL QUEBEC					3,214.08	9,309,411.00
7. HYDRO-ELECTRIC POWER COMM. OF ONTARIO	15,000	4,500,000	1,607	2,321,962	1,613,271.89	119,889.20
		105,000		29,972		
8. CANADIAN NIAGARA POWER CO.	307,000	205,000	307,143	79,215	525,126.96	356,466.94
			83,758			
			545			
			24			
9. ONTARIO-MINNESOTA PULP & PAPER CO.	91,980					
10. DEROL & WINDSOR SUBWAY CO.	1,000					
11. THE CANADIAN TRANSIT CO.	25		393,077	2,431,149	2,141,612.93	9,785,767.12
SUB TOTAL ONTARIO					21,469.77	-
12. B.C. HYDRO & POWER AUTHORITY	2,500	1,500,000	2,590	540,752		
		10,000				
13. COMINCO LIMITED	300	500,000	80	178,900	2,855.53	
		45,000		3,563		
14. WEST KOOTENAY POWER & LIGHT CO.	50		25		565.44	
SUB TOTAL BRITISH COLUMBIA			2,795	723,215	24,890.74	-
TOTAL CANADA			613,871	3,695,916	\$ 4,248,614.87	\$ 11,919,855.63

ELECTRICAL ENERGY - SUPPLEMENTARY STATISTICS (THOUSANDS OF KILOWATTHOURS)

ELECTRIC ENERGY GENERATION FOR ALL CANADA	1965	-	157,683,108	(PRELIMINARY)	* SEVEN MONTHS ONLY.
ELECTRIC ENERGY IMPORTATION FROM U.S.A.	1966	-	3,057,315		
CANADIAN ENERGY SUPPLY FOR	1966	-	160,740,423	(FIRM) - 0.4% OF CANADIAN SUPPLY	
ELECTRIC ENERGY EXPORT (GROSS) TO U.S.A.	1966	-	613,871	(INTERRUPTIBLE) - 2.3% OF CANADIAN SUPPLY	
			3,695,916		



NATIONAL ENERGY BOARD

ANNUAL REPORT



FOR THE YEAR ENDED
31 DECEMBER 1967

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ROGER DUHAMEL, F.R.S.C.
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Ottawa, 1968

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NATIONAL ENERGY BOARD

ANNUAL REPORT

FOR THE YEAR ENDED

31 DECEMBER 1967

NATIONAL ENERGY BOARD
OTTAWA 1, ONT.



OFFICE NATIONAL DE L'ÉNERGIE
OTTAWA 1, ONT.

7-2-8
FILE NO. 7-2-8
DOSSIER

29 March, 1968.

The Honourable Jean-Luc Pepin, P.C.,
Minister of Energy, Mines and Resources,
O t t a w a.

Dear Sir:

In accordance with the provisions of
Section 91 of the National Energy Board Act,
Statutes of Canada, 1959, Chapter 46, I have
the pleasure to submit the Annual Report of
the Board for the year ending 31 December 1967.

Yours faithfully,

A handwritten signature in dark ink, appearing to read "I.W. McKinnon".

I.W. McKinnon,
Chairman.

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NATIONAL ENERGY BOARD

I.N. McKinnon	-	Chairman
R.D. Howland	-	Vice-Chairman
H.L. Briggs	-	Member
D.M. Fraser	-	Member
Maurice Royer	-	Member

Robert A. Stead - Secretary

B.H. Whittle	-	Assistant Secretary
T.L. de Fayer	-	Director, Economics Branch
J.G. Stabback	-	Chief Engineer, Engineering Branch
E.B. McDougall	-	Financial Adviser, Financial Branch
F.H.J. Lamar	-	Board Counsel, Law Branch
J.G. Debanné	-	Director, Operations Research Branch

ANNUAL REPORT OF THE NATIONAL ENERGY BOARD

FOR THE YEAR ENDED 31 DECEMBER 1967

INTRODUCTION

This is the ninth Annual Report of the National Energy Board and it summarizes the activities of the Board in the discharge of its statutory responsibilities during 1967. The Board's functions and responsibilities, as set forth under the National Energy Board Act, may be classified as regulatory and advisory.

The regulatory functions include authorizations, with the approval of the Governor in Council, for the export and import of gas and the export of electric power; authorizations, subject to the approval of the Governor in Council, for the construction of international power lines for the transmission of electrical power, and pipe lines for the transportation of oil, gas and petroleum products in inter-provincial or international trade; supervision of the rates, tolls and tariffs of such pipe lines; and many other ancillary functions dealing with such matters as pipe line safety, minor construction, and methods of keeping accounts by pipe line companies.

The advisory functions of the Board require that it be well informed on the characteristics and capabilities of each form of energy, the supply and availability of each form

and the problems associated with the production, transportation, distribution and use of each form both in Canada and, to a moderate degree, outside Canada. The Board also co-operates with governmental and other agencies both in and outside Canada in the conduct of special studies on energy matters.

The development and growth of energy and energy resources in Canada during 1967 continued to have a significant impact on the economy of the nation. This required the Board to advise on, mediate in and regulate a variety of matters that affected the public interest, from both a national and international point of view. While the Board is interested in all major forms of energy of economic importance, its main concern is with oil, gas and electricity.

The National Energy Board was established in 1959 under authority of the National Energy Board Act. The Board consists of five members who are appointed by the Governor in Council for a period of seven years or until the age of seventy. The Secretary of the Board is also appointed by the Governor in Council.

The Board is assisted in the performance of its duties by a small integrated group of professional specialists and supporting staff. As at 31 December, 1967, the establishment of the Board consisted of 138, including the five Board Members

and the Secretary, and represented an increase of eleven over the previous year. During the year some difficulty was encountered in securing suitably qualified personnel for certain professional positions, but recruitment was generally more satisfactory than in previous years. Employment of bilingual personnel enhanced the ability of the staff to communicate in both languages. In addition, approximately 20 per cent of the staff will be undergoing language training under the government sponsored language training program during the 1967-68 training year, of which 7.5 per cent are registered for training during normal working hours, the remaining 12.5 per cent for evening classes.

The budget appropriation of the Board for the 1967-68 fiscal year totalled \$1,500,000 of which \$1,267,500 was for salaries and \$232,500 was for all other expenses.

The offices of the Board were relocated in 1967 to Place de Ville, 112 Kent Street, Ottawa. Before the move, the Board's staff was located at three separate premises. The consolidation of the office space for the entire staff has proved very beneficial. A small office was opened in Calgary for work related to oil and gas reserves in Western Canada.

The ensuing sections of this report provide more detailed information on the Board and its activities in 1967.

OIL AND GAS

(a) Exploration and Development

The Board's statutory duty to study and keep under review matters related to the petroleum and natural gas industries was carried out to the capacity of the resources available during 1967.

As in previous years the Canadian petroleum and natural gas industry continued to invest heavily in all phases of exploration and production development. According to estimates, more than \$1.1 billion was spent during the year for exploration, land acquisition, production development and gas processing plants.

The discovery of thick Devonian reefs in the Rainbow-Zama area of northwest Alberta in early 1965, coupled with the ability of advanced seismic techniques to locate these reefs, has prompted a surge of exploration and development activity in that area. This activity continued throughout 1966 and 1967 and is apparent from the concentration of seismic crews, drilling rigs and the purchase of Crown reserve parcels in the area throughout 1967. Upwards of one quarter of the total \$1.1 billion expenditure of the industry appears to have been directed to this area during the past year.

The following table, prepared from industry sources, indicates that the total 1967 exploratory drilling was relatively

unchanged from 1966.

	Exploration Drilling		Development Drilling	
	<u>1966</u>	<u>1967</u>	<u>1966</u>	<u>1967</u>
Alberta				
No. of Wells	613	631	1,031	996
Footage Drilled (1,000's)	3,230	3,100	5,027	4,759
Saskatchewan				
No. of Wells	307	316	816	648
Footage Drilled (1,000's)	1,195	1,321	2,976	2,225
Total Western Canada				
No. of Wells	1,058	1,075	1,980	1,813
Footage Drilled (1,000's)	5,102	5,058	8,514	7,669

There was, however, some decline in development drilling, possibly as a result of wider well spacing and of changes in the Alberta prorationing regulations.

Another, and perhaps more reliable, indication of continued growth in exploration was the increase in seismic activity which reached more than 1,000 crew-months during 1967 compared with less than 650 crew-months two years earlier.

Apart from the outstanding record of oil successes in the Rainbow-Zama area, there were numerous other oil and gas discoveries in Western Canada during 1967. Gas was discovered in the Middle Devonian some 50 miles east of Fort Nelson in Northern British Columbia and two significant gas discoveries were made in the foothills of Alberta. The

possibility of finding accumulations similar to Rainbow-Zama has increased interest in the deeper horizons in Saskatchewan.

Three holes were drilled offshore of the southwestern side of Vancouver Island and one hole was drilled on Sable Island off Canada's East Coast. Although all four wells were abandoned, they undoubtedly have contributed substantially to the knowledge of underground sediments in the two areas.

Commercial production from the Athabasca Oil Sands began in 1967. Although limited at the present time to the one plant having a capacity of 45,000 barrels per day, this operation has aroused widespread interest because of the tremendous size of the Athabasca deposit, even in relation to the world's total known reserves of hydrocarbons.

(b) Oil - Production, Transportation and Markets

The Canadian oil industry had an excellent year in 1967: production of crude oil and natural gas liquids reached a record level of some 1,106,500 barrels daily. The increase of 92,600 barrels daily over the 1966 production rate was among the largest ever recorded by the industry.

While the underlying demand for Canadian oil remained strong, certain special circumstances contributed to exceptional growth in export markets, (see Appendix IX). Foremost among these were, of course, the consequences of the Middle East conflict in early June, which included the closure of the Suez

Canal, the temporary shutdown of certain key pipe lines carrying oil from Iraq and Saudi Arabia to the eastern Mediterranean loading terminals, and the temporary blocking by Arab exporting countries of shipments to certain destinations. These events caused what was essentially a major transportation problem for the world oil industry by necessitating that oil from the Middle Eastern countries, destined to Western Europe or the Americas, move around the Cape of Good Hope.

The most effective immediate contribution which the Canadian industry could make to relieving the situation was to expand its exports via the Trans Mountain pipe line to refineries on the west coast of the United States ("District V"). This was done to the extent that capacity in the pipe line allowed: in the months July, August and September, export deliveries to that area were some 70,000 barrels daily above the normally-expectable level. Each barrel of Canadian oil replacing a barrel of oil that would otherwise have been imported from overseas sources afforded a substantial saving in scarce tanker capacity, since overseas oil normally reaching District V is shipped from the Middle East and South East Asia.

Demand for Canadian oil in the lower Great Lakes area of the United States was stimulated in 1967 by bottlenecks occurring in United States pipe line systems supplying United

States crude to Great Lakes refiners as well as by unusually large increases in oil product consumption in this area.

The Board by reason of its close contact with industry on both sides of the border was able to foresee some of the developing problems, and secured the co-operation of the Canadian industry, and of Interprovincial Pipe Line Company in particular, in determining what measures could be taken by the Canadian industry to meet the growing requirements of the United States markets adjacent to Canada. Industry sought the assistance of the Government relating to the implementation of Interprovincial's plan to construct new facilities in the form of a loop line from Superior, Wisconsin, to Ontario via Chicago, and the acceptance of such a project by the United States authorities. The Board co-operated with other departments in discussions with the United States authorities on this matter. At the end of the year, Interprovincial was awaiting the issuance of a Presidential Permit covering the construction of the international connections relating to its project. The Presidential Permit was issued early in 1968.

To maximize its capacity to meet the immediate demand, while providing for the development of its looping project, Interprovincial applied to the Board for authorization of a major expansion of its facilities in the Prairie Provinces and Ontario. The Board in March issued a Certificate of

Public Convenience and Necessity in response to this application. In the event, Interprovincial experienced a shortage of capacity in the last few months of 1967.

In December 1967, Interprovincial filed its application for a certificate authorizing construction it proposes for 1968 in Canada. This construction is closely related to that planned by Lakehead Pipe Line Company Inc., Interprovincial's United States subsidiary. Lakehead's 1968 construction plan includes a 34-inch pipe line from Superior to Chicago as the first stage in looping the system from Superior to Sarnia via Chicago.

In October the Board approved the looping of the border-crossing pipe line operated by the Aurora Pipe Line Company which links the facilities of the Rangeland Pipe Line Company in Canada with the Glacier Pipe Line system in the United States.

An application by the Northern Pipe Line Company regarding a new crossing of the international border was scheduled to have been heard in October but was adjourned sine die at the applicant's request.

During the period of stringency affecting overseas oil, close liaison was maintained with industry in regard to the adequacy of imported supplies to eastern Canada. The Board was also active in discussion with United States authorities and within the Organization for Economic Co-operation

and Development in regard to a number of problems arising out of the overseas oil emergency. Although the normal flow of Canada's oil imports was disrupted for a while and inventories were drawn down, at no time were deliveries to final consumers adversely affected; in fact retail gasoline prices were actually reduced in parts of eastern Canada. By the end of the summer, the industry had succeeded, at some cost, in re-arranging its supply sources to achieve a normal level of imports. For a time some crude oil was imported to the Atlantic Provinces from the United States Gulf Coast, but emergency deliveries of Canadian oil to the United States West Coast exceeded these imports by a large margin. At the commencement of the heating season, inventories of fuel oils were considered adequate.

It would probably be wrong to expect that the 1967 surge in Canadian exports, to the extent that it was attributable to the events in the Middle East, will continue in a perceptible way in 1968. Indeed, prospects for 1968 are clouded by the fact that, in certain markets, some recession in demand is probably inevitable. Nevertheless, the position of Canada as a stable source of oil supply has been enhanced as a result of these recent developments overseas, in the view of existing and potential users of Canadian oil. This could have a favourable influence on its long-term

market prospects.

Co-ordination of planning for emergency operation of the petroleum industry was continued with the Emergency Supply Planning Branch of the Department of Defence Production under a number of industry advisory committees.

(c) Gas - Production, Transportation and Markets

The Canadian natural gas industry continued to display strong growth trends in production throughout 1967. Net production of natural gas, exclusive of gas re-injected into reservoirs, and gas wasted and flared, appears to have reached a new record total of some 4,020 million cubic feet per day during the year, an increase of almost 11 per cent over 1966 production.

Of the total net production, some 3,390 million cubic feet per day were delivered into gas pipe line systems. Of this total, exports amounted to some 1,400 million cubic feet per day and 1,990 million cubic feet per day were delivered to Canadian consumers or were used as pipe line fuel.

The industry continued to invest substantial amounts to increase its capacity to process natural gas and to recover sulphur and natural gas liquids. Total capacity to process raw gas, including facilities under construction at the end of the year, increased from 7,685 million cubic

feet per day at the end of 1966, to 8,279 million cubic feet per day at the end of 1967. It is estimated that actual production of propane from gas plants increased some 12 per cent to 39.1 thousand barrels per day and production of butanes also increased 12 per cent to 25.5 thousand barrels per day. Production of natural gasoline increased moderately from 78.4 to 81.0 thousand barrels per day.

During the year there was a distinct shift in emphasis on the part of the gas processing industry towards sulphur production. Sulphur productive capacity increased by more than 40 per cent and actual production increased by 27 per cent to a record 2.2 million long tons. Several plants designed primarily for sulphur production, with natural gas as a by-product, were built during the year.

The Board received applications during 1967 for the installation of additional gas pipe line facilities, the approval of which resulted in increases in capacity during the year as follows:-

	<u>Capacity</u>	
	<u>Millions cubic feet per day</u>	
<u>Pipe Line Company</u>	<u>From</u>	<u>To</u>
Trans-Canada Pipe lines Limited	1,320	1,415
Westcoast Transmission Company Limited	700	725

Natural gas marketing in Canada increased by some 12 per cent to 2,130 million cubic feet per day, including pipe line fuel and imports. The total number of Canadian users of gas grew to 1,865,000, with the greatest increase occurring in Ontario.

Special Board studies, with particular emphasis on exploration and production developments, were carried out. Detailed reserve determinations were completed for new fields in Western Canada as information became available, and the reserves of established fields were re-examined on a rotational basis in order to keep reserve estimates as current as possible.

A major concern during early 1967 was the prospect of some difficulty in securing delivery of adequate supplies of natural gas for Ontario and Quebec. This was particularly important since it appeared at one time that the Great Lakes project, approved by the Board in 1966, might not receive approval of the Federal Power Commission of the United States in time to make deliveries to meet peak demands of Canadian consumers during the winter of 1967-68.

As a result, a hearing was held beginning on 23 May on a "Contingent Application" by Trans-Canada Pipe Lines Limited, under Part III of the Act, to increase the delivery capability of its existing line in Canada if

necessary. However, approval of the Great Lakes project by the Federal Power Commission was issued on 20 June, 1967 and Trans-Canada withdrew its "Contingent Application", with the consent of the Board.

In December 1966, the Board heard joint applications of Alberta and Southern Gas Co. Ltd. and Canadian-Montana Pipe Line Company under Part VI of the Act for additional exports. Alberta and Southern sought to increase its exports to Pacific Gas Transmission Company by some 105 million cubic feet per day beginning about 1 November, 1968 and by a further 105 million cubic feet per day beginning about 1 November, 1969, such total increase in exports to terminate on 31 October, 1993. Canadian-Montana sought to increase its exports to Montana Power Company by 10 million cubic feet per day commencing about 1 November, 1968 and by a further 10 million cubic feet per day commencing about 1 November, 1969, such total additional exports to terminate on 31 October, 1993. Canadian-Montana proposed to purchase these additional quantities of gas from Alberta and Southern. The Board, with the approval of the Governor in Council, issued licences, both dated 30 May, 1967.

The Board issued gas export Licence No. GL-23, under date of 21 March, 1967, to Westcoast Transmission Company Limited in respect of an application heard by the Board in October 1966. Westcoast had requested this export

licence to enable it to re-arrange and increase its exports to El Paso Natural Gas Company under terms of a "New Gas Export Agreement" entered into between Westcoast and El Paso and dated 28 February, 1966. Licence GL-23 was conditioned to become effective only after approval by the Board of the contractual "effective date", which approval was required prior to 31 October, 1967, or within 30 days after the Federal Power Commission issued its final decision in respect of El Paso's complementary application, whichever was earlier.

Opinion No. 526 issued 10 August, 1967, by the Federal Power Commission found that the new import had not been shown to be required by the present or future public convenience and necessity and was thereby not in the public interest of the United States. Opinion No. 526 set out the maximum price and other conditions under which additional imports of some 200 million cubic feet per day of Canadian gas from Westcoast to El Paso would be accepted. The previously authorized import of some 300 million cubic feet per day, which had been in effect for 10 years, would continue for another 10 years, without any extension or change in price such as had been agreed by the companies and approved by the Board's Licence GL-23.

Under the date of 2 October, 1967, Westcoast filed an application supported by an "Amendatory Agreement" between

itself and El Paso designed to meet the conditions set out by the Federal Power Commission. This application by Westcoast was heard by the Board in October 1967.

The Board issued its Reasons for Decision in December 1967, rejecting the Westcoast application. The Board, however, stated its willingness to continue, subject to the approval of the Governor in Council, temporary authorization for export of an emergency supply of some 100 million cubic feet per day to 30 June, 1968, under the authority of Licence GL-23. Such temporary authorization was granted by the Board under Order No. AO-4-GL-23, dated 27 December, 1967, and counterpart import authorizations were subsequently issued by the Federal Power Commission. At the year end, Westcoast and El Paso were considering new proposals to present to both Canadian and United States authorities in respect of long term export.

In June, the Board conducted a hearing respecting the advisability of making certain amendments to the National Energy Board Part VI Regulations. The purpose was to consider whether the export of propane by means other than a pipe line, and of butane by any means, should be exempted from licensing requirements, and whether regular reporting of such exports should be made to the Board. Subsequently, on 30 August the Governor in Council amended the Regulations to permit such exports without licence and to permit the export

of propane by pipe line, within certain quantity limits, upon the basis of a Board Order rather than the full Licence procedure.

On behalf of Canada, the Board maintains liaison on energy matters with the Organization for Economic Co-operation and Development. A special contribution was made in 1967 to the Energy Committee of the Organization in reporting Canada's experience with natural gas. This was in connection with a study undertaken by the European Member Countries to assess the probable impact of natural gas upon other forms of energy in Western Europe. Canada's experience in the development and marketing of natural gas was especially relevant because of the parallel between Canada's situation some ten years earlier and the present conditions in Europe where natural gas is becoming an important source of energy. The Consumers' Gas Company made an excellent presentation as part of Canada's contribution to the work of the Committee.

(d) Pipe Line Operation - General

One of the more important functions of the Board is to satisfy itself that the design and operation of high pressure pipe lines are consistent with public safety.

In this connection, the Board continued to investigate incidents involving pipe lines under its

jurisdiction. These are listed on Appendix X. Informal meetings were held with pipe line company management in order to review pipe line design features and operating or construction procedures which appear to require scrutiny. During the year, inspection of newly constructed pipe line facilities was carried out to ensure that construction was in accordance with approved design and that adequate tests were performed before new pipe line facilities were placed in service.

The Board has issued General Orders regarding the crossing of pipe lines by other utilities and vice-versa, and regulates installation of such crossings in the interests of safety and minimum interruption of service. One means of control is the requirement that individual crossings be constructed and operated only in accordance with specified conditions, which are set forth in a Crossing Order authorizing the installation.

Co-operation with the Canadian Standards Association and pipe line companies in developing pipe line standards and specifications was continued. During the year the Association issued a new standard for oil pipe lines (CSA Z 183-1967). Meetings of committees of the Association drafting the standard for gas pipe lines (CSA Z-184) were attended and at the year

end the final draft had been issued for ballot. The oil pipe line standard has received a qualified acceptance by the Board; however, there is need for additional safety regulations. To this end, oil pipe line safety regulations have been developed and are now in draft form.

A special hearing was held in May at which land owners in the London area of Ontario appeared to express objections to certain construction work of Interprovincial Pipe Line Company, which had previously been approved by the Board. After the hearing, the Board arranged for certain inspection work at the site of construction in order to mitigate problems which might arise particularly with regard to possible interference of pipe lines with land drainage. The Board was fortunate in securing the services of an inspector familiar with the area and its problems. Working under the direction of the Engineering Branch, he was able to help both the pipe line company and the land owners in resolving problems which might otherwise have been irritating and costly to all concerned. This type of inspection may be necessary in other cases in the future, at least where pipe lines cross intensively farmed areas where drainage or other particular problems may exist.

Members of the staff, in co-operation with the Department of Energy, Mines and Resources and the Dominion Bureau of Statistics, worked on composite maps: one showing

all major gas pipe lines in Canada and the second showing all major oil pipe lines in Canada. Both maps will be issued in 1968.

(e) Financial Aspects

The Board continued to maintain surveillance over the financial affairs, accounting practices, rates, tolls, tariffs and contracts of pipe line companies under its jurisdiction.

Accounting and financial surveillance was accomplished through the analysis of annual and quarterly financial reports which are filed by the companies and through special reports which are designed by the Board to provide a clear accounting portrayal of specific areas of activity of particular interest to the Board.

In past annual reports, mention has been made of field examinations of the plant accounts of pipe line companies. During 1967, an extensive field examination was made of the operating accounts of one of the larger gas pipe line companies. Present plans call for the examination of the operating accounts of major pipe line companies on a regular rotating basis, subject to availability of staff. Other field visits were made, where necessary, to clarify matters of particular significance in the accounting field.

The Board also conducted such examinations and

made such tests as were considered necessary of the financial and accounting information submitted by companies with applications for certificates and licences. Because of the volume and complexity of such applications, a large proportion of the time of the staff was, in fact, pre-empted by this work.

Several special studies were undertaken on subjects including the depreciation policies of specific companies; the analysis of construction costs and comparison with estimates submitted in support of previous applications; and proposed revisions to the information that companies are required to submit with certificate and licence applications.

New regulations governing the preservation of records of oil and gas pipe line companies and revised uniform accounting for oil pipe line companies were made by the Governor in Council. Work was initiated during the year on a revision of the Uniform Classification of Accounts for Gas Pipe Line Companies.

As one aspect of its general surveillance of the rates, tolls and tariffs of companies which are under its jurisdiction, the Board keeps under review the sales, purchase and transportation contracts of regulated gas pipe line companies. In addition, statistical information in connection with volumes of throughput, revenue and expenses is analyzed

as part of the Board's normal procedures.

While it has not yet been necessary to hold formal proceedings with respect to regulation of rates, tolls and tariffs, as contemplated under Part IV of the Act, there continue to be frequent discussions on rate matters between the Board and companies under its jurisdiction, and discussions with other interested parties. The staff continued to develop information, concepts and techniques necessary for the conduct of more formal proceedings whenever they may become necessary. During 1967, for instance, a detailed study of the cost of service of one of the major gas pipe line companies was made, and certain techniques were developed for the use of computer facilities in the analysis of data necessary for the scrutiny and regulation of rates, tolls and tariffs.

ELECTRIC POWER

The Board's statutory responsibilities in electric power are advisory as to all aspects of the industry within the jurisdiction of the Parliament of Canada, but regulatory only as to export of electric power and energy and the facilities required for such export. While the regulatory work continued at the same level as in previous years, the growing interest in the extra-regional aspects of electric power systems in Canada was apparent in the Board's advisory work.

Demand for electric power in Canada as a whole, in 1967, continued its steady rise. In some regions of the country, however, the rate of growth varied considerably from the overall rate of 7.8 per cent. Electric energy production for domestic demand kept pace, of course, with the growth in demand.

Changes are to be expected however in the proportions of primary energy production from waterpower, coal, oil and nuclear power. In 1966 water power accounted for 82.3 per cent of all electric energy production in Canada. The figure is not yet available for 1967 but the trend for this has been down in recent years. It is probable that there will prove to have been a further reduction in 1967 but current developments such as those on the Peace River in British Columbia, the Nelson River in Manitoba, and the

Churchill River in Labrador will tend to maintain the hydroelectric energy proportion for some years to come.

The remaining 15 to 20 per cent of production is mainly from coal, although some power is produced from natural gas in Alberta and British Columbia and some from oil, particularly in the Maritime Provinces. Coal is imported from the United States to Ontario for steam-electric production and this can be expected to continue in the foreseeable future. In 1967 landed imports of coal and coke to Canada totalled 16.2 million short tons with an estimated value of approximately \$151 million. Almost 30 per cent of these imports was used in Ontario thermal-electric plants. Because electric energy production from nuclear fuel is being developed in central Canada, growth in coal use may be expected to level off. Production from nuclear sources is just beginning; it amounted to only 0.06 per cent of Canadian electric energy production in 1967, but the proportion will increase rapidly in coming years.

Interchange of electric power and energy with United States utilities is important where it occurs but is not large in relation to total production. Gross exports of electric energy amounted to 2.5 per cent of electric energy production in Canada in 1967, slightly down from the 1966 figure. Imports, however, increased appreciably, particularly in British Columbia, to the extent that total imports slightly

exceeded exports. Appendix XIII provides details of electric energy exports for the year.

Several developments in the electric power industry in Canada in 1967 deserve discussion because of their inter-regional or international aspects.

On a national scale, studies of the possible economic feasibility of a national electric power network were completed and reported on by the consultant retained by the Government to study the matter on behalf of the Federal-Provincial Working Committee on Long Distance Transmission. The Board is represented on the Committee and was active in the assessment of the consultant's report. At year end, the Committee's report to the Ministerial Committee on the National Network concept was in the final stages of production and has since been forwarded to the various governments.

During 1967, the Board reported to the Government on the general reliability of electric power systems as a result of its studies and analysis of the North-east Power Failure of 1965. The Board's report entitled "Technical Features of Security of Electric Power System Supply" was distributed throughout the electric utility industry in Canada and a meeting of utility personnel was held by the Board in November to make possible a frank and open exchange of views between utilities on this important subject. There was good representation from utilities in every province.

The Board continued its advisory role with the Atlantic Development Board in its activities in the electric power field in the Atlantic Provinces. There was continuing study throughout the year of the proposed electric interconnection between Prince Edward Island and the mainland power systems, carried out in co-operation with the Maritime Electric Company, the electric utility on the Island. It is expected the studies will culminate in a report early in 1968 on the proposed interconnection. The studies made considerable use of the computing service capabilities provided by the staff, and existing simulation programs were adapted and used.

Other aspects of power supply and interconnection in the Atlantic Provinces were investigated, notably a probability analysis of unit size and reserve requirements of the systems and a study of the optimum long term expansion of supply capability. These are continuing studies.

In its regulatory role, the Board in 1967 received two applications for the export of electric power requiring public hearing. Both were received near year end and only one, that of New Brunswick Electric Power Commission, was heard in 1967. This case constitutes a proposal to integrate the utilities in the northern part of Maine with the New Brunswick system, involving a short term sharing of surplus New Brunswick capacity with the Maine Public Service Company as well as the sharing of the transmission circuits of that

Company with the New Brunswick system. Because of the possible future of such cross-border arrangements the case has general as well as regional significance. The Board's decision was pending at the end of the year.

Appendix XIII lists the various orders and approvals given by the Board during 1967 under Part VI Section 6A of the National Energy Board Regulations relating to electric energy export.

CONTINUING ENERGY STUDIES

Preparation of a comprehensive long-term energy forecast continued in 1967. This study is concerned with the Canadian supply and demand positions of the various forms of energy in domestic and foreign markets, having regard to a certain range of possible developments. The forecasts cover the period to 1985.

Operations research contributed to the Board's decision-making process on a number of occasions during the year. The operations research or systems approach essentially consists of designing and fitting to any particular problem a system or mathematical structure which inter-relates the various pertinent aspects of the overall problem in order to solve it in some optimal fashion.

During 1967, this activity of the Board concentrated primarily on analyzing and specifying the various components of the energy sector and integrating these components into a computerized regional model of the energy sector of the Canadian economy. Important parts of this regional model which are in various stages of development, are investment decision, energy resource allocation, and environmental models as well as detailed simulation models of various types.

Several investment decision models were developed and were applied to various applications heard by the Board. Other models of this type, developed during the year,

pertain to investment in electricity generating capacity, flow maximization in oil pipe lines and optimal routing of new pipe lines.

Models are also being developed to represent the broader environment within which the energy sector of the economy functions. These are essentially econometric models with which the resource allocation models, and other models previously referred to, would inter-act in a realistic representation of the energy markets. In the past year considerable research has been devoted to analyzing energy structures and demands in Ontario, in the industrial, transportation, residential and commercial sectors. The methodology of extending the analysis to the other provinces or regions was also developed.

The foregoing work has required a more intensified use of applied mathematics and the staff has been suitably reinforced in the mathematical programming area. Also, because of the fundamental research nature of the work, the Board has engaged in a certain amount of energy-related research in co-operation with professors at Laval, Ottawa and Harvard Universities and, from time to time, by the use of consultants from several universities.

As the application of models and programs increased, it became apparent that ready access to computers is important to the efficient conduct of such studies. Accordingly, a computer terminal has been installed at the Board's premises

which will be connected to a computer through leased telephone lines. This offers a rapid and economical interaction with extensive data systems and models as well as access to very fast and economical computer installations. The first phase of an information system, employing data storage and retrieval techniques, has been implemented in order to render more efficient the preparation of input for production programs and energy models.

APPENDIX I

NEW CERTIFICATES OF PUBLIC CONVENIENCE AND NECESSITY PURSUANT TO SECTION 44 ISSUED DURING 1967

NATURAL GAS PIPE LINES

<u>APPLICANT</u>	<u>FACILITIES</u>	<u>ESTIMATED COST</u>	<u>HEARD</u>	<u>ISSUED</u>	<u>CERTIFICATE NO.</u>
1. Westcoast Transmission Company Limited	i) Approximately 48 miles of 24-inch diameter pipe line,) ii) Approximately 18 miles of 12.750-inch diameter pipe line,) iii) Certain additional gas treating facilities and works connected therewith, all in Northern British Columbia in the vicinity of Fort Nelson)	\$15,666,100	Commenced 5 October, 1966	27 January, 1967	GC-31
2. Westcoast Transmission Company Limited	i) Approximately 98.5 miles of 36-inch diameter pipe line,) ii) Additional compression facilities at ten locations,) iii) Certain additional gas treating facilities and works connected therewith, all in the Province of British Columbia) Amendment to Condition 5 of Certificate GC-32	\$64,510,100 (this includes \$15,666,100 referred to under GC-31)	Commenced 5 October, 1966	30 March, 1967	GC-32
		N/A	N/A	13 July, 1967	AO-1-GC-32

NEW CERTIFICATES OF PUBLIC CONVENIENCE AND NECESSITY PURSUANT TO SECTION 44 ISSUED DURING 1967

NATURAL GAS PIPE LINES

APPLICANT	FACILITIES	ESTIMATED COST	HEARD	ISSUED	CERTIFICATE NO.
2. Westcoast Transmission Company Limited (cont'd)	Revision i) of location of 98.5 miles of 36-inch diameter pipe line,))) ii) of location for one compressor station,))) iii) to Condition 5 respecting the immediate construction of approximately 41 miles of 36-inch diameter pipe line))) Correcting recital in Order No. AO-2-GC-32	N/A	N/A	31 August, 1967	AO-2-GC-32
3. Alberta Natural Gas Company	Additional compression facilities in the Province of British Columbia	\$5,571,000	Commencing 6 December, 1966	12 September, 1967	AO-3-GC-32

NEW CERTIFICATES OF PUBLIC CONVENIENCE AND NECESSITY PURSUANT TO SECTION 44 ISSUED DURING 1967

OIL PIPE LINES

<u>APPLICANT</u>	<u>FACILITIES</u>	<u>ESTIMATED COST</u>	<u>HEARD</u>	<u>ISSUED</u>	<u>CERTIFICATE NO.</u>
1. Interprovincial Pipe Line Company	i) Approximately 312 miles of 34-inch diameter pipe line in the Provinces of Alberta, Saskatchewan and Manitoba, ii) Approximately 58 miles of 20-inch diameter pipe line in the Province of Ontario, iii) Three new pump stations - one each in the Provinces of Alberta, Saskatchewan and Ontario, iv) Additional pumping facilities and modifications to existing pump stations at 12 locations in the Provinces of Alberta, Saskatchewan, Manitoba and Ontario, and works connected therewith. Amendment to portion of pipe line referred to under ii) and amendment to location of new pump station referred to under iii) of Certificate OC-20	\$45,891,500	Commenced 14 February, 1967	21 March, 1967	OC-20
		N/A	N/A	13 July, 1967	AO-1-OC-20

N/A not applicable

* * * * *

APPENDIX II

EXEMPTION ORDERS PURSUANT TO SECTION 49*

CLASS "B" CONSTRUCTION

(This is construction which, at the discretion of the Board, may be the subject of a specific exemption order pursuant to Section 49).

NATURAL GAS PIPE LINES

- (1) Trans-Canada Pipe Lines Limited, a new meter station known as 'St. Claude Meter Station' and works connected therewith added to its pipe line system in the Province of Manitoba, estimated cost \$9,200, Order No. XG-1-67, dated 17 February, 1967.
- (2) Trans-Canada Pipe Lines Limited, 19.3 miles of 36-inch diameter pipe in four portions in the Provinces of Manitoba and Ontario and a meter station known as 'Vermillion Bay Meter Station' and works connected therewith in the Province of Ontario added to its pipe line system, estimated cost \$5,808,500, Order No. XG-2-67, dated 17 February, 1967, as amended by Order No. AO-1-XG-2-67, dated 20 July, 1967, and Order No. AO-2-XG-2-67, dated 27, July 1967 (because of the issuance of further Orders, the final approval in Order No. XG-2-67 relates only to a total of 6.6 miles of line of pipe and the said Meter Station).
- (3) Trans-Canada Pipe Lines Limited, a new meter station known as 'Hamilton Meter Station' and a connecting line added to its pipe line system at Hamilton, Ontario, estimated cost \$35,000, Order No. XG-3-67, dated 11 May, 1967.
- (4) Westcoast Transmission Company Limited, installation of main-line valves, removal of plug valves and installation of scraper barrel launching and receiving facilities along its pipe line system, in the Province of British Columbia, estimated cost \$2,225,000, Order No. XG-4-67, dated 30 June, 1967.
- (5) Pacific Petroleum Limited, a field compressor station and works connected therewith to complement compression facilities in certain gas fields at Fort St. John, British Columbia, connected to the pipe line of Westcoast Transmission Company Limited, estimated cost \$252,600, Order No. XG-5-67, dated 13 July, 1967.

*Under Section 49 the Board may authorize the construction of pipe lines or international power lines, within certain limitations, by order rather than by formal certification procedure required for major installations of pipe line facilities or international power lines.

APPENDIX II (cont'd)

- 2 -

- (6) Trans-Canada Pipe Lines Limited, a new compressor station known as 'Compressor Station No. 144' and works connected therewith added to its pipe line system, and additions to five compressor stations in the Provinces of Saskatchewan, Manitoba and Ontario, estimated cost \$10,817,000, Order No. XG-6-67, dated 13 July, 1967
- (7) Trans-Canada Pipe Lines Limited, a new meter station known as 'Dawn-Tecumseh Meter Station' added to its pipe line system, near Sarnia, Ontario, estimated cost \$482,000, Order No. XG-7-67, dated 20 July, 1967, as amended by Order No. AO-1-XG-7-67, dated 27 July, 1967.
- (8) Trans-Canada Pipe Lines Limited, approximately one-half mile of 20-inch diameter connecting line, between its 'Dawn-Tecumseh Meter Station' and the 'Dawn Compressor Station' of Union Gas Company of Canada Limited added to the pipe line system of Trans-Canada Pipe Lines Limited, near Dawn, Ontario, estimated cost \$39,100, Order No. XG-8-67, dated 20 July, 1967.
- (9) Trans-Canada Pipe Lines Limited, approximately 6.6 miles of 36-inch pipe line and works connected therewith added to its pipe line system, in the District of Kenora, Ontario, estimated cost included under item (2) of this Appendix, Order No. XG-9-67, dated 20 July, 1967.
- (10) Trans-Canada Pipe Lines Limited, approximately 4 miles of 36-inch pipe line and works connected therewith added to its pipe line system, in the District of Kenora, Ontario, estimated cost included under item (2) of this Appendix, Order No. XG-10-67, dated 20 July, 1967.
- (11) Trans-Canada Pipe Lines Limited, a new temporary meter station known as 'Sarnia Meter Station' and works connected therewith added to its pipe line system, at Sarnia, Ontario, estimated cost \$22,000, Order No. XG-11-67, dated 19 October, 1967.

APPENDIX II (cont'd)

EXEMPTION ORDERS PURSUANT TO SECTION 49

CLASS "B" CONSTRUCTION

(This is construction which, at the discretion of the Board, may be the subject of a specific exemption order pursuant to Section 49).

OIL PIPE LINES

- (1) Montreal Pipe Line Company Limited, a 24-inch diameter pipe line together with a 20-inch diameter and a 16-inch diameter spur line added to its pipe line system across the channels of the St. Lawrence River, at Montreal, Quebec, estimated cost \$2,100,000, Order No. XO-1-67, dated 16 March, 1967, as amended by Order No. AO-1-XO-1-67, dated 8 June, 1967.
- (2) Interprovincial Pipe Line Company, additional storage tanks and additional telemetry facilities for remote supervision added to its pipe line system, in the Province of Ontario, estimated cost \$737,000, Order No. XO-2-67, dated 6 April, 1967.
- (3) Interprovincial Pipe Line Company, modifications and pumping facilities added to its pipe line system, in the Provinces of Alberta, Saskatchewan and Manitoba, estimated cost \$331,000, Order No. XO-3-67, dated 27 July, 1967.
- (4) Trans Mountain Oil Pipe Line Company, a crude petroleum loading line and a water ballast line added to its pipe line system at Westridge-Burrard Inlet, British Columbia, estimated cost \$185,000, Order No. XO-4-67, dated 27 July, 1967.
- (5) Trans Mountain Oil Pipe Line Company, a new pump station known as 'Redpass Pump Station' and works connected therewith added to its pipe line system, in the Province of British Columbia, estimated cost \$200,000, Order No. XO-5-67, dated 27 July, 1967, as amended by Order No. AO-1-XO-5-67, dated 9 November, 1967.
- (6) Trans-Mountain Oil Pipe Line Company, additional pumping unit and works connected therewith added to its existing 'Kingsvale Pump Station' forming part of its pipe line system, near Kamloops, British Columbia, estimated cost \$100,000, Order No. XO-6-67, dated 27 July, 1967, as amended by Order No. AO-1-XO-6-67, dated 9 November, 1967.

APPENDIX II (cont'd)

- 2 -

- (7) Montreal Pipe Line Company Limited, additional pumping units, replacement of existing pumping unit, reactivation of one pump station as well as metering facilities added to its pipe line system, all in the Province of Quebec, estimated cost \$900,000, Order No. XO-7-67, dated 18 August, 1967.
- (8) Trans-Northern Pipe Line Company, a new pump station known as 'Metcalf Pump Station' and works connected therewith added to its pipe line system, in the Province of Ontario, estimated cost \$68,500, Order No. XO-8-67, dated 19 September, 1967.
- (9) Aurora Pipe Line Company, one-half mile of 12 $\frac{1}{2}$ -inch loop (of its existing pipe line) added to its pipe line system, in the Province of Alberta, estimated cost \$20,000, Order No. XO-9-67, dated 19 October, 1967.

APPENDIX II (cont'd)

EXEMPTION ORDERS PURSUANT TO SECTION 49

CLASS "C" CONSTRUCTION

(This is miscellaneous construction of a routine character which, at the discretion of the Board, may be the subject of an annual blanket exemption order pursuant to Section 49).

NATURAL GAS PIPE LINES

- (1) Alberta Natural Gas Company, for certain miscellaneous facilities to be added to its existing pipe line system in the Provinces of Alberta and British Columbia, estimated cost, \$156,070, Order No. XGM-1-67, dated 20 April, 1967.
- (2) Trans-Canada Pipe Lines Limited, for certain miscellaneous facilities to be added to its existing pipe line system in the Provinces of Alberta, Saskatchewan, Manitoba, Ontario and Quebec, estimated cost, \$9,625,908, Order No XGM-2-67, dated 11 May, 1967.
- (3) Champion Pipe Line Corporation Limited, for certain miscellaneous facilities to be added to its existing pipe line system in the Provinces of Quebec and Ontario, estimated cost, \$11,000, Order No. XGM-3-67, dated 27 April, 1967.
- (4) Westcoast Transmission Company Limited, for certain miscellaneous facilities to be added to its existing pipe line system in the Provinces of Alberta and British Columbia, estimated cost \$1,900,124, Order No. XGM-4-67, dated 11 May, 1967, as amended by Order No. AO-1-XGM-4-67, dated 27 July, 1967, and Order No. AO-2-XGM-4-67, dated 24 August, 1967.
- (5) Petroleum Transmission Company, for certain miscellaneous facilities to be added to its existing pipe line system in the Provinces of Alberta, Saskatchewan and Manitoba, estimated cost, \$18,250, Order No. XGM-5-67, dated 8 June, 1967.

APPENDIX II (cont'd)

EXEMPTION ORDERS PURSUANT TO SECTION 49

CLASS "C" CONSTRUCTION

(This is miscellaneous construction of a routine character which, at the discretion of the Board, may be the subject of an annual blanket exemption order pursuant to Section 49).

OIL PIPE LINES

- (1) Interprovincial Pipe Line Company, for certain miscellaneous facilities to be added to its existing pipe line system in the Provinces of Alberta, Saskatchewan, Manitoba and Ontario, estimated cost, \$668,900, Order No. XOM-1-67, dated 6 April, 1967.
- (2) Westspur Pipe Line Company, for certain miscellaneous facilities to be added to its existing pipe line system in the Provinces of Saskatchewan and Manitoba, estimated cost, \$375,000, Order No. XOM-2-67, dated 6 April, 1967.
- (3) Trans-Northern Pipe Line Company, for certain miscellaneous facilities to be added to its existing pipe line system in the Provinces of Quebec and Ontario, estimated cost, \$110,000, Order No. XOM-3-67, dated 6 April, 1967.
- (4) Montreal Pipe Line Company Limited, for certain miscellaneous facilities to be added to its existing pipe line system in the Province of Quebec, estimated cost, \$70,000, Order No. XOM-4-67, dated 6 April, 1967.
- (5) Trans Mountain Oil Pipe Line Company, for certain miscellaneous facilities to be added to its existing pipe line system in the Provinces of Alberta and British Columbia, estimated cost, \$642,933, Order No. XOM-5-67, dated 20 April, 1967.

APPENDIX III

NEW LICENCES AND ORDERS TO EXPORT NATURAL GAS AND BUTANES ISSUED DURING 1967

A. LICENCES - NATURAL GAS EXPORT - SECTION 82

APPLICANT	LICENCE NUMBER	ISSUED	TERM		MAXIMUM EXPORT VOLUMES			POINT OF EXPORT
			FROM	TO	DAILY (Mcf)	ANNUAL (MMcf)	TERM (MMcf)	
1. Westcoast Transmission Company Limited	GL-23 ^(a)	21/3/67	1/11/66	31/10/67	101,150	36,920)	Huntingdon, B.C.
			1/11/67	31/10/69	202,300	74,040)	
			1/11/69	31/10/76	202,300	66,630)	
			1/11/76	2/10/77	202,300	63,963	(b)	
			3/10/77	31/10/77	505,750	14,667)	
			1/11/77	31/10/91	505,750	166,590)	
2. Alberta & Southern Gas Company Limited	GL-24	30/5/67	1/11/68	31/10/69	121,000	38,900)	Kingsgate, B.C.
			1/11/69	31/10/91	236,000	77,900)	
			1/11/91	31/10/93	135,400	44,600)	
3. Canadian Montana Pipe Line Company	GL-25	30/5/67	1/11/68	31/10/69	12,000	3,650)	Cardston, Alta.
			1/11/69	31/10/91	24,000	7,300)	
			1/11/91	31/10/93	13,800	4,200)	

(a) GL-23 was substantially amended subsequent to 31 December, 1967 to reduce the Maximum Export Volumes to 202,300 Mcf/d and to 1,514,720 MMcf over the term of approximately 20 years

(b) not annual: for periods as shown

APPENDIX III (cont'd)NEW LICENCES AND ORDERS TO EXPORT NATURAL GAS AND BUTANES ISSUED DURING 1967B. ORDERS AMENDING EXISTING NATURAL GAS EXPORT LICENCES - SECTION 17

APPLICANT	ORDER NUMBER	ISSUED	COMMENTS
1. Trans-Canada Pipe Lines Limited	AO-2-GL-2	26/ 1/67	i) Amendment extending expiration date from 31/12/66 to 31/12/67
2. Trans-Canada Pipe Lines Limited	AO-3-GL-2	15/12/67	i) Amendment extending expiration date from 31/12/67 to 31/12/68
3. Canadian Montana Pipe Line Company	AO-3-GL-5	6/ 6/67	i) Amendment providing flexibility in annual volume limitations
4. Niagara Gas Transmission Limited	AO-4-GL-6	29/12/67	i) Amendment revising and extending the term of the licence ii) Amendment increasing the volume authorized for export iii) Amendment substituting references to revised price and cost of service agreements
5. Canadian Montana Pipe Line Company	AO-1-GL-17	6/ 6/67	i) Amendment providing flexibility in annual volume limitations ii) Amendment increasing the volume authorized for export
6. Trans-Canada Pipe Lines Limited	AO-3-GL-18	2/11/67	i) Amendment extending duration of interruptible volume period
7. Trans-Canada Pipe Lines Limited	AO-1-GL-19	1/12/67	i) Amendment reducing the volume authorized for export ii) Amendment substituting references to revised price agreements
8. Trans-Canada Pipe Lines Limited	AO-2-GL-20	19/ 1/67	i) Amendment extending the date for filing FPC authorizations with NEB from 1/2/67 to 1/5/67

NEW LICENCES AND ORDERS TO EXPORT NATURAL GAS AND BUTANES ISSUED DURING 1967

B. ORDERS AMENDING EXISTING NATURAL GAS EXPORT LICENCES - SECTION 17

APPLICANT	ORDER NUMBER	ISSUED	COMMENTS
9. Trans-Canada Pipe Lines Limited	AO-3-GL-20	1/ 5/67	i) Amendment extending the date for filing FPC authorizations with NEB from 1/5/67 to 1/6/67
10. Trans-Canada Pipe Lines Limited	AO-4-GL-20	13/ 7/67	i) Amendment extending the date for filing FPC authorizations with NEB from 1/6/67 to 1/8/67 ii) Amendment varying termination date in accord with Licencee's Alberta permit no. TC 64-6 as amended
11. Trans-Canada Pipe Lines Limited ^(a)	AO-2-GL-21	19/ 1/67	i) Amendment extending the date for filing FPC authorizations with NEB from 1/2/67 to 1/5/67
12. Trans-Canada Pipe Lines Limited ^(a)	AO-3-GL-21	1/ 5/67	i) Amendment extending the date for filing FPC authorizations with NEB from 1/5/67 to 1/6/67
13. Trans-Canada Pipe Lines Limited ^(a)	AO-4-GL-21	13/ 7/67	i) Amendment extending the date for filing FPC authorizations with NEB from 1/6/67 to 1/8/67 ii) Amendment varying termination date in accord with Licencee's Alberta permit no. TC 64-6 as amended
14. Trans-Canada Pipe Lines Limited	AO-2-GL-22	19/ 1/67	i) Amendment extending the date for filing FPC authorizations with NEB from 1/2/67 to 1/5/67
15. Trans-Canada Pipe Lines Limited	AO-3-GL-22	1/ 5/67	i) Amendment extending the date for filing FPC authorizations with NEB from 1/5/67 to 1/6/67

NEW LICENCES AND ORDERS TO EXPORT NATURAL GAS AND BUTANES ISSUED DURING 1967

B. ORDERS AMENDING EXISTING NATURAL GAS EXPORT LICENCES - SECTION 17

APPLICANT	ORDER NUMBER	ISSUED	COMMENTS
16. Trans-Canada Pipe Lines Limited	AO-4-GL-22	13/ 7/67	i) Amendment extending the date for filing FPC authorizations with NEB from 1/6/67 to 1/8/67 ii) Amendment extending expiration date from 31/10/67 to 31/12/68
17. Westcoast Transmission Company Limited	AO-1-GL-23	17/ 5/67	i) Amendment permitting continued export of initial volumes ii) Amendment extending the effective date for the commencement of authorized rolled-in prices from 30/6/67 to 31/10/67
18. Westcoast Transmission Company Limited	AO-2-GL-23	27/10/67	i) Amendment extending the term for export of initial volumes from 31/10/67 to 30/11/67
19. Westcoast Transmission Company Limited	AO-3-GL-23	24/11/67	i) Amendment extending the term for export of initial volumes from 30/11/67 to 31/12/67
20. Westcoast Transmission Company Limited	AO-4-GL-23	27/12/67	i) Amendment extending the term for export of initial volumes from 31/12/67 to 30/6/68
21. Westcoast Transmission Company Limited	AO-1-PC 1955-958	31/ 3/67	i) Amendment authorizing increased export volumes - conditional upon compliance with condition 7 of Licence GL-23 ii) Amendment stipulating prices to be received iii) Amendment providing operating tolerance in maximum daily volume limitations. iv) Amendment providing delivery tolerance in maximum daily volume limitations
22. Westcoast Transmission Company Limited	DO-1-67	22/12/67	i) Dismissal of application for order to amend Licence GL-23, Certificate GC-32 and Licence PC 1955-958

(a) this licence authorizes an export at Emerson, Manitoba for gas to be imported at Sarnia and Sault Ste. Marie, Ontario, to serve the Eastern Canadian Market

APPENDIX III (cont'd)

NEW LICENCES AND ORDERS TO EXPORT NATURAL GAS AND BUTANES ISSUED DURING 1967

C. ORDERS - BUTANES EXPORT - PART VI REGULATIONS - SECTION 16A^(a)

APPLICANT	ORDER NUMBER	ISSUED	TERM		MAXIMUM VOLUME (barrels)	POINT OF EXPORT
			FROM	TO		
1. Hudson's Bay Oil and Gas Company Limited	GO-1-67	9/2/67	1/3/67	29/2/68	110,000	Carway, Alberta via Aurora Pipe Line Company

(a) effective 30 August, 1967, control over the export of butanes was removed by amendment of Section 16 of the Regulations under Part VI of the Act, by Order-in-Council P.C. 1967 - 1685

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APPENDIX IV

NEW LICENCES AND ORDERS TO IMPORT NATURAL GAS ISSUED DURING 1967

A. ORDERS AMENDING EXISTING NATURAL GAS IMPORT LICENCES - SECTION 17

APPLICANT	ORDER NUMBER	ISSUED	COMMENTS
1. Trans-Canada Pipe Lines Limited	AO-2-GLI-4	19/1/67	i) Amendment extending the date for filing FPC authorizations with NEB from 1/2/67 to 1/5/67
2. Trans-Canada Pipe Lines Limited	AO-3-GLI-4	1/5/67	i) Amendment extending the date for filing FPC authorizations with NEB from 1/5/67 to 1/6/67
3. Trans-Canada Pipe Lines Limited	AO-4-GLI-4	13/7/67	i) Amendment extending the date for filing FPC authorizations with NEB from 1/6/67 to 1/8/67 ii) Amendment extending expiration date from 1/11/68 to 1/11/69 iii) Amendments adjusting the commencement and termination dates of each specified rate in accord with the extended expiration date of the licence
4. Trans-Canada Pipe Lines Limited ^(a)	AO-2-GL-21	19/1/67	i) Amendment extending the date for filing FPC authorizations with NEB from 1/2/67 to 1/5/67
5. Trans-Canada Pipe Lines Limited ^(a)	AO-3-GL-21	1/5/67	i) Amendment extending the date for filing FPC authorizations with NEB from 1/5/67 to 1/6/67
6. Trans-Canada Pipe Lines Limited ^(a)	AO-4-GL-21	13/7/67	i) Amendment extending the date for filing FPC authorizations with NEB from 1/6/67 to 1/8/67 ii) Amendment varying termination date in accord with Licencee's Alberta permit No. TC 64-6, as amended

(a) this licence authorizes an export at Emerson, Manitoba for gas to be imported at Sarnia and Sault Ste. Marie, Ontario, to serve the Eastern Canadian Market

NEW LICENCES AND ORDERS TO IMPORT NATURAL GAS ISSUED DURING 1967

B. ORDERS - NATURAL GAS IMPORT - PART VI REGULATIONS - SECTION 17

APPLICANT	ORDER NUMBER	ISSUED	TERM		MAXIMUM IMPORT VOLUMES			POINT OF IMPORT
			FROM	TO	DAILY (Mcf)	ANNUAL (MMcf)	TERM (MMcf)	
1. Union Gas Company of Canada, Limited	EO-1-67	25/ 5/67	1/ 9/67	1/5/68	N/S	N/S	8,000	Temporary import at Ojibway, Ontario
2. Trans-Canada Pipe Lines Limited	EO-2-67	24/11/67	20/11/67	N/S	N/S	N/S	500	Emergency import at Niagara Falls, Ontario

N/S not specified

C. ORDERS AMENDING EXISTING NATURAL GAS IMPORT ORDERS - SECTION 17

APPLICANT	ORDER NUMBER	ISSUED	COMMENTS
1. Union Gas Company of Canada, Limited	A0-1-EO-2-66	15/ 2/67	i) Amendment removing daily rate limitation of 50,000 Mcf

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APPENDIX V

SUBSISTING LICENCES AND ORDERS TO EXPORT NATURAL GAS AND BUTANES

A. NATURAL GAS

EXPORTER	LICENCE OR ORDER NUMBER	POINT OF EXPORT	TERM OF LICENCE OR ORDER		MAXIMUM EXPORT VOLUMES		
			FROM	TO	DAILY (Mcf)	ANNUAL (MMcf)	TERM (MMcf)
1. Trans-Canada Pipe Lines Limited	GL-1(AO-2)	Emerson, Man.	11/ 4/60	14/ 5/81	223,000	74,000	1,410,000
2. Trans-Canada Pipe Lines Limited	GL-2(AO-3)	Niagara Falls, Ont.	11/ 4/60	31/12/68	96,900	20,663	N/S
3. Alberta & Southern Gas Co. Limited	GL-3(AO-3)	Kingsgate, B.C.	31/10/61	31/10/86	458,750	153,270	3,826,000
4. Westcoast Transmission Co. Limited	GL-4(AO-2)	Kingsgate, B.C.	10/12/61	10/12/81	152,000	51,000	1,020,000
5. Canadian Montana Pipe Line Company	GL-5(AO-3)	Cardston, Alta.	31/10/61	31/10/86	36,000	10,950	273,750
6. Niagara Gas Transmission Limited	GL-6(AO-4)	Cornwall, Ont.	7/ 9/62	30/ 6/87	23,000	5,520	121,190
7. Patrick T. Buckley	GL-7(AO-1)	Coutts, Alta.	22/ 6/60	31/ 5/68	1.3 ^(a)	10	N/S
8. Canadian Montana Pipe Line Company	GL-8(AO-1)	Aden, Alta.	1/ 9/60	14/ 5/74	99,460	19,892	220,000
9. Alberta & Southern Gas Co. Limited	GL-16(AO-1)	Kingsgate, B.C.	1/11/66 1/11/67	31/10/67 31/10/89	113,125 226,250	37,415) 74,830)	1,614,000
10. Canadian Montana Pipe Line Company	GL-17(AO-1)	Cardston, Alta.	1/11/66 1/11/67	31/10/67 31/10/89	12,000 24,000	3,650) 7,300)	164,250

SUBSISTING LICENCES AND ORDERS TO EXPORT NATURAL GAS AND BUTANES

A. NATURAL GAS

EXPORTER	LICENCE OR ORDER NUMBER	POINT OF EXPORT	TERM OF LICENCE OR ORDER		MAXIMUM EXPORT VOLUMES		
			FROM	TO	DAILY (Mcf)	ANNUAL (MMcf)	TERM (MMcf)
11. Trans-Canada Pipe Lines Limited	GL-18(AO-3) ^(b)	Emerson, Man.	1/11/65 1/11/66	31/10/68 31/10/89	25,000 143,000	8,000) 52,300)	1,200,000
12. Trans-Canada Pipe Lines Limited	GL-19(AO-1)	Phillipsburg, Que.	1/11/65	31/10/89	17,700	6,500	108,000
13. Trans-Canada Pipe Lines Limited	GL-20(AO-4)	Emerson, Man.	(c)	31/10/91	87,600	32,100	765,000
14. Trans-Canada Pipe Lines Limited	GL-21(AO-4) ^(d)	Emerson, Man.	(c)	31/10/91	677,000	247,782	6,000,000
15. Trans-Canada Pipe Lines Limited	GL-22(AO-4)	Emerson, Man.	(c)	31/12/68	N/S	N/S	3,000
16. Westcoast Transmission Co. Limited	PC1955-958(AO-1)	Huntingdon, B.C.	1/ 1/66	2/10/77	303,450	N/S	1,192,500
17. Westcoast Transmission Co. Limited	GL-23(AO-4) ^(f)	Huntingdon, B.C.	1/11/66 1/11/67 1/11/69 1/11/76 1/11/77 3/10/77 1/11/77	31/10/67 31/10/69 31/10/76 2/10/77 31/10/77 31/10/91 31/10/91	101,150 202,300 202,300 202,300 505,750 505,750	36,920) 74,040) 66,630(e)) 63,963(e)) 14,667(e)) 166,590)	3,062,100
18. Alberta & Southern Gas Co. Limited	GL-24 ^(g)	Kingsgate, B.C.	1/11/68 1/11/69 1/11/91	31/10/69 31/10/91 31/10/93	121,000 236,000 135,400	38,900) 77,900) 44,600)	1,841,900

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APPENDIX V (cont'd)

SUBSISTING LICENCES AND ORDERS TO EXPORT NATURAL GAS AND BUTANES

A. NATURAL GAS

EXPORTER	LICENCE OR ORDER NUMBER	POINT OF EXPORT	TERM OF LICENCE OR ORDER		MAXIMUM EXPORT VOLUMES		
			FROM	TO	DAILY (Mcf)	ANNUAL (MMcf)	TERM (MMcf)
19. Canadian Montana Pipe Line Company	GL-25 (g)	Cardston, Alta.	1/11/68 1/11/69 1/11/91	31/10/69 31/10/91 31/10/93	12,000 24,000 13,800	3,650) 7,300) 4,200)	172,650

N/S not specified

- (a) not more than 1.3 MMcf in any one month
- (b) the interruptible volume of 25 MMcf/d terminates when the firm volumes begin under both precedent agreements or on 31 October, 1968 whichever is earlier
- (c) date to be fixed by the Board
- (d) this licence authorizes an export at Emerson, Manitoba for gas to be imported at Sarnia and Sault Ste. Marie, Ontario to serve the Eastern Canadian Market
- (e) not annual: for periods as shown
- (f) GL-23 was substantially amended subsequent to 31 December, 1967 to reduce the Maximum Export Volumes to 202,500 Mcf/d and to 1,514,720 MMcf over the term of approximately 20 years
- (g) conditioned upon authorization by the FPC, dependent upon outcome of current proceedings before that body

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APPENDIX V (cont'd)

SUBSISTING LICENCES AND ORDERS TO EXPORT NATURAL GAS AND BUTANES (a)

B. BUTANES

EXPORTER	LICENCE OR ORDER NUMBER	POINT OF EXPORT	TERM OF LICENCE OR ORDER		MAXIMUM EXPORT VOLUMES		
			FROM	TO	DAILY (barrels)	ANNUAL (barrels)	TERM (barrels)
1. Shell Canada Limited	GL-14	Huntingdon, B.C.	15/9/63	14/ 9/68	N/S	2,200,000	11,000,000
2. Hudson's Bay Oil and Gas Limited	GO-1-66	Carway, Alta.	1/3/66	28/ 2/67	N/S	182,500	182,500
3. Imperial Oil Limited	GO-3-66	Gretna, Man.	13/9/66	12/ 9/67	N/S	365,000	365,000
4. Texaco Exploration Company	GO-4-66	Huntingdon, B.C.	15/9/66	14/ 9/67	N/S	365,000	365,000
5. Mobil Oil Canada Limited	GO-5-66	Huntingdon, B.C.	1/1/67	31/12/67	N/S	365,000	365,000
6. Hudson's Bay Oil and Gas Limited	GO-1-67	Carway, Alta.	1/3/67	29/ 2/68	N/S	110,000	110,000

N/S not specified

(a) effective 30 August, 1967, control over the export of butanes was removed by amendment of Section 16 of the Regulations under Part VI of the Act, by Order-in-Council P.C. 1967 - 1685

* * * *

APPENDIX VI

EXPORTS OF NATURAL GAS AND BUTANES TO THE U.S.A. UNDER SUBSISTING LICENCES/ORDERS

A. NATURAL GAS	EXPORTER AND LICENCE/ORDER	MAXIMUM		1963 (MMcf)	1964 (MMcf)	1965 (MMcf)	1966 (MMcf)	1967 (MMcf)	CUMULATIVE to 31/12/67 (MMcf)	TOTAL AUTHORIZED EXPORTS (MMcf)	REMAINING (a) UNDER LICENCES (MMcf)
		DAILY (Mcf)	ANNUAL (MMcf)								
1.	Trans-Canada Pipe Lines Limited GL-1(AO-2)	223,000	74,000	62,785	71,366	73,987	73,763	74,700	490,179	1,410,000	919,821
2.	Trans-Canada Pipe Lines Limited(b) GL-2(AO-3)	96,900	20,663	-	-	-	-	-	-	20,663	20,663
3.	Alberta & Southern Gas Company Limited GL-3(AO-3)	458,750	153,270	128,065	146,068	152,599	159,560*	162,337*	874,841	3,826,000	2,951,159
4.	Westcoast Transmission Company Limited GL-4(AO-2)	152,000	51,000	40,261	43,507	42,627	43,576	47,600	254,186	1,020,000	765,814
5.	Canadian Montana Pipe Line Company GL-5(AO-3)	36,000	10,950	10,838	10,736	10,927	10,904	10,225	63,802	273,750	209,948
6.	Niagara Gas Transmission Limited GL-6(AO-4)	23,000	5,520	1,687	2,078	3,144	3,371	3,994	14,531	121,190	106,659

APPENDIX VI

EXPORT OF NATURAL GAS AND BUTANES TO THE U.S.A. UNDER SUBSISTING LICENCES/ORDERS

A. NATURAL GAS

EXPORTER AND LICENCE/ORDER	MAXIMUM		CUMULATIVE to 31/12/62 (MMcf)	1963 (MMcf)	1964 (MMcf)	1965 (MMcf)	1966 (MMcf)	1967 (MMcf)	CUMULATIVE to 31/12/67 (MMcf)	TOTAL AUTHORIZED EXPORTS (MMcf)	REMAINING (a) UNDER LICENCES (MMcf)
	DAILY (Mcf)	ANNUAL (MMcf)									
7. Patrick T. Buckley GL-7(AO-1)	1.3 ^(c)	10	9	3	2	2	2	2	20	N/S	N/A
8. Canadian Montana Pipe Line Company GL-8(AO-1)	99,460	19,892	50,678	16,414	17,142	18,379	19,602	16,579	138,794	220,000	81,206
9. Alberta & Southern Gas Company Limited GL-16(AO-1) 1/11/66 to 31/10/67 1/11/67 to 31/10/89	113,125 226,250	37,415 (74,830 (	-	-	-	-	6,253	43,769	50,022))	1,614,000	1,563,978
10. Canadian Montana Pipe Line Company GL-17(AO-1) 1/11/66 to 31/10/67 1/11/67 to 31/10/89	12,000 24,000	3,650 (7,300 (-	-	-	-	613	3,966	4,579))	164,250	159,671

APPENDIX VI (cont'd)

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EXPORTS OF NATURAL GAS AND BUTANES TO THE U.S.A. UNDER SUBSISTING LICENCES/ORDERS

A. NATURAL GAS

EXPORTER AND LICENCE/ORDER	MAXIMUM		CUMULATIVE to 31/12/62 (MMcf)	1963 (MMcf)	1964 (MMcf)	1965 (MMcf)	1966 (MMcf)	1967 (MMcf)	CUMULATIVE to 31/12/67 (MMcf)	TOTAL AUTHORIZED EXPORTS (MMcf)	REMAINING (a) UNDER LICENCES (MMcf)
	DAILY (Mcf)	ANNUAL (MMcf)									
11. Trans-Canada Pipe Lines Limited GL-18(AO-3) 1/11/65 to 31/10/68(d) 1/11/66 to 31/10/89(e)	25,000 143,000	8,000 52,300	- -	- -	- -	- -	3,385 -	2,525 6,493	5,910) 6,493)	1,200,000	1,187,597
12. Trans-Canada Pipe Lines Limited GL-19(AO-1)	17,700	6,500	-	-	-	-	270	613	883	108,000	107,117
13. Trans-Canada Pipe Lines Limited(b) GL-20(AO-4)	87,600	32,100	-	-	-	-	-	-	-	765,000	765,000
14. Trans-Canada Pipe Lines Limited(b) GL-21(AO-4)	677,000	247,782	-	-	-	-	-	-	-	6,000,000	6,000,000
15. Trans-Canada Pipe Lines Limited(b) GL-22(AO-4)	N/S	N/S	-	-	-	-	-	-	-	3,000	3,000

APPENDIX VI (cont'd)

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APPENDIX VI (cont'd)

EXPORTS OF NATURAL GAS AND BUTANES TO THE U.S.A. UNDER SUBSISTING LICENCES/ORDERS

A. NATURAL GAS

EXPORTER AND LICENCE/ORDER	MAXIMUM		CUMULATIVE to 31/12/62 (MMcf)	1963 (MMcf)	1964 (MMcf)	1965 (MMcf)	1966 (MMcf)	1967 (MMcf)	CUMULATIVE to 31/12/67 (MMcf)	TOTAL AUTHORIZED EXPORTS (MMcf)	REMAINING UNDER LICENCES (MMcf)
	DAILY (Mcf)	ANNUAL (MMcf)									
16. Westcoast Transmission Company Limited PCI955-958 (AO-1)	303,450	N/S	420,398	99,498	101,340	103,044	110,520	118,783	953,583	1,192,500	238,917
17. Westcoast Transmission Company Limited GL-23(AO-4)(f)	101,150	36,920	-	-	-	-	-	21,645	21,645	3,062,100	3,040,455
1/11/66 to 31/10/67	202,300	74,040									
1/11/67 to 31/10/69	202,300	66,630									
1/11/69 to 31/10/76	202,300	63,963									
1/11/76 to 2/10/77	505,750	14,667									
3/10/77 to 31/10/77	505,750	166,590									
1/11/77 to 31/10/91											
18. Alberta & Southern Gas Company Limited(b) GL-24	121,000	38,900	-	-	-	-	-	-	-	1,841,900	1,841,900
1/11/68 to 31/10/69	236,000	77,900									
1/11/69 to 31/10/91	135,400	44,600									
1/11/91 to 31/10/93											

APPENDIX VI (cont'd)

APPENDIX VI (cont'd)

EXPORTS OF NATURAL GAS AND BUTANES TO THE U.S.A. UNDER SUBSISTING LICENCES/ORDERS

A. NATURAL GAS

EXPORTER AND LICENCE/ORDER	MAXIMUM		CUMULATIVE to 31/12/62 (MMcf)	1963 (MMcf)	1964 (MMcf)	1965 (MMcf)	1966 (MMcf)	1967 (MMcf)	CUMULATIVE to 31/12/67 (MMcf)	TOTAL AUTHORIZED EXPORTS (MMcf)	REMAINING (a) UNDER LICENCES (MMcf)
	DAILY (Mcf)	ANNUAL (MMcf)									
19. Canadian Montana Pipe Line Company(b) GL-25											
1/11/68 to 31/10/69	12,000	3,650									
1/11/69 to 31/10/91	24,000	7,300								172,650	172,650
1/11/91 to 31/10/93	13,800	4,200									
TOTAL			777,919	359,551	392,239	404,709	431,819	513,231	2,879,468	23,015,003 ^(g)	20,135,535 ^(g)

(a) it may not be possible to export all the total remaining under licence because of peak day and annual volume restriction

(b) no exports as at December 31, 1967

(c) 1.3 MMcf per month

(d) interruptible service

(e) firm service

(f) this licence authorizes an export at Emerson, Manitoba for gas to be imported at Sarnia and Sault Ste. Marie, Ontario to serve the Eastern Canadian Market

(g) does not include Patrick T. Buckley

* quantities exceed maximum annual due to pick-up of shortfalls in previous years

N/S not specified

N/A not applicable

APPENDIX VI (cont'd)

EXPORTS OF NATURAL GAS AND BUTANES TO THE U.S.A. UNDER SUBSISTING LICENCES/ORDERS

B. BUTANES

EXPORTER	LICENCE OR ORDER NUMBER	EXPIRY DATE	MAXIMUM ANNUAL EXPORTS (barrels)	CUMULATIVE to 31/12/65 (barrels)	1966 (barrels)	1967 (a) (barrels)	CUMULATIVE to 30/8/67 (barrels)	TOTAL AUTHORIZED EXPORTS (barrels)	REMAINING UNDER LICENCES OR ORDERS (barrels)
1. Shell Canada Limited	GL-14	14/ 9/68	2,200,000	3,128,384	1,610,363	1,121,522	5,860,269	11,000,000	5,139,731
2. Hudson's Bay Oil and Gas Company Limited	GO-1-66	28/ 2/67	182,500	-	92,027	15,076	107,103	182,500	(75,397)
3. Imperial Oil Limited	GO-3-66	12/ 9/67	365,000	-	3,533	2,962	6,495	365,000	(358,505)
4. Texaco Exploration Company	GO-4-66	14/ 9/67	365,000	-	140,472	108,338	248,810	365,000	(116,190)
5. Mobil Oil Canada Limited	GO-5-66	31/12/67	365,000	-	-	358,039	358,039	365,000	(6,961)
6. Hudson's Bay Oil and Gas Company Limited	GO-1-67	29/ 2/68	110,000	-	-	44,483	44,483	110,000	65,517
TOTAL				3,128,384	1,846,395	1,650,420	6,625,199	12,387,500	4,648,195

(a) represents the period 1 January, 1967, to 30 August, 1967 only.

Effective 30 August, 1967, control over the export of butanes was removed by amendment of Section 16 of the Regulations under Part VI of the Act, by Order-in-Council P.C. 1967 - 1685.

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APPENDIX VII

SUBSISTING LICENCES AND ORDERS TO IMPORT NATURAL GAS

IMPORTER	LICENCE OR ORDER NUMBER	POINT OF IMPORT	TERM OF LICENCE OR ORDER		MAXIMUM IMPORT VOLUMES		
			FROM	TO	DAILY (Mcf)	ANNUAL (MMcf)	TERM (MMcf)
1. Union Gas Co. of Canada Limited	PCI956-1848	Ojibway, Ont.	17/12/56	31/ 3/70	N/S	5,500	N/S
2. Union Gas Co. of Canada Limited	GLI-1	Ojibway, Ont.	1/ 7/65	5/11/76	55,000	15,500	170,000
3. Trans-Canada Pipe Lines Limited	GLI-2(AO-2)	Niagara Falls, Ont.	1/11/65 1/11/66 1/11/67 1/11/68 1/11/69 1/11/70	1/11/66 1/11/67 1/11/68 1/11/69 1/11/70	N/S N/S N/S N/S N/S	25,500) 30,400) 15,300) 10,200) 5,100)	86,500
4. Tecumseh Gas Storage Limited	GLI-3	Ojibway, Ont.	first import	1/ 8/69	20,000	3,000	6,000
5. Border Utilities Limited	GO-2-66	Coutts, Alta.	2/ 6/66	14/ 9/85	1,000	N/S	N/S
6. Trans-Canada Pipe Lines Limited	GLI-4(AO-4)	Sarnia, Ont.	N/S 1/11/68	31/10/68 1/11/69	N/S N/S	N/S N/S	59,245 23,058
7. Milk River Gas Company	GO-6-66	Coutts, Alta.	22/ 9/66	14/ 9/85	1,000	N/S	N/S
8. Trans-Canada Pipe Lines Limited	GL-21(AO-4) ^(b)	Sault Ste. Marie & Sarnia, Ont.	N/S	31/10/91 ^(a)	677,000	247,782	6,000,000

APPENDIX VII

SUBSISTING LICENCES AND ORDERS TO IMPORT NATURAL GAS

	IMPORTER	LICENCE OR ORDER NUMBER	POINT OF IMPORT	TERM OF LICENCE OR ORDER		MAXIMUM IMPORT VOLUMES		
				FROM	TO	DAILY (Mcf)	ANNUAL (MMcf)	TERM (MMcf)
9.	Union Gas Co. of Canada Limited	EO-2-66(AO-1)	Ojibway, Ont.	29/ 9/66	1/5/67	N/S	N/S	8,000
10.	Union Gas Co. of Canada Limited	EO-1-67	Ojibway, Ont.	1/ 9/67	1/5/68	N/S	N/S	8,000
11.	Trans-Canada Pipe Lines Limited	EO-2-67	Niagara Falls, Ont.	20/11/67	N/S	N/S	N/S	500

(a) or sooner; in accord with expiration date of Licencee's Alberta permit No. TC 64-6, as amended, or substituted therefor.

(b) this licence authorizes an export at Emerson, Manitoba for gas to be imported at Sarnia and Sault Ste. Marie, Ontario to serve the Eastern Canadian Market

N/S not specified

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APPENDIX VIII

IMPORTS OF NATURAL GAS FROM THE U.S.A. UNDER SUBSISTING LICENCES/ORDERS

IMPORTER	MAXIMUM		CUMULATIVE to 31/12/61 (MMcf)	1962 (MMcf)	1963 (MMcf)	1964 (MMcf)	1965 (MMcf)	1966 (MMcf)	1967 (MMcf)	CUMULATIVE to 31/12/67 (MMcf)	TOTAL AUTHORIZED IMPORTS (MMcf)	REMAINING (a) UNDER LICENCE (MMcf)
	DAILY (Mcf)	ANNUAL (MMcf)										
1. Coutts Gas Company Limited(b) PC1955-1742	N/S	120	433	73	78	91	99	17	-	791	2,340	N/A
2. Border Utilities Limited GO-2-66	1,000	N/S	-	-	-	-	-	27	33	60	N/S	N/A
3. Milk River Gas Company Limited GO-6-66	1,000	-	-	-	-	-	-	62	73	135	N/S	N/A
4. Union Gas Company of Canada Limited GLI-1	55,000	15,500(c)	-	-	-	-	7,856	10,140	12,814	30,810	167,042(d)	136,232
5. Trans-Canada Pipe Lines Limited GLI-2(AO-2)	(See Appendix VII) item 3		-	-	-	-	4,267	24,677	29,543	58,487	86,500	28,013
6. Tecumseh Gas Storage Limited GLI-3	20,000	3,000	-	-	-	-	-	2,958	2,938	5,896	5,896(d)	-
7. Trans-Canada Pipe Lines Limited GLI-4(AO-4)	(See Appendix VII) item 6		-	-	-	-	-	-	12,843	12,843	82,303	69,460

IMPORTS OF NATURAL GAS FROM THE U.S.A. UNDER SUBSISTING LICENCES/ORDERS

IMPORTER	MAXIMUM		CUMULATIVE to 31/12/61 (MMcf)	1962 (MMcf)	1963 (MMcf)	1964 (MMcf)	1965 (MMcf)	1966 (MMcf)	1967 (MMcf)	CUMULATIVE to 31/12/67 (MMcf)	TOTAL AUTHORIZED IMPORTS (MMcf)	REMAINING (a) UNDER LICENCE (MMcf)
	DAILY (Mcf)	ANNUAL (MMcf)										
8. Union Gas Co. of Canada Ltd. PC1956-1848	N/S	5,500 (c)	43,220	5,404	5,410	5,404	5,404	5,404	2,316	72,562	N/S	N/A
9. Trans-Canada Pipe Lines Ltd. GL-21(AO-4)	677,000	247,782	-	-	-	-	-	-	-	-	6,000,000	6,000,000
10. Trans-Canada Pipe Lines Ltd. EO-2-62	N/S	N/S	-	2	-	-	-	-	-	2	5	N/A
11. Trans-Canada Pipe Lines Ltd. EO-1-63	70,000	N/S	-	-	199	-	-	-	-	199	1,000	N/A
12. Union Gas Co. of Canada Ltd. EO-2-63	N/S	N/S	-	-	55	-	-	-	-	55	N/S	N/A
13. Union Gas Co. of Canada Ltd. EO-3-63	N/S	N/S	-	-	1,083	-	-	-	-	1,083	1,965 ^(d)	N/A

APPENDIX VIII (cont'd)

IMPORTS OF NATURAL GAS FROM THE U.S.A. UNDER SUBSISTING LICENCES/ORDERS

IMPORTER	MAXIMUM		CUMULATIVE to 31/12/51 (MMcf)	1962 (MMcf)	1963 (MMcf)	1964 (MMcf)	1965 (MMcf)	1966 (MMcf)	1967 (MMcf)	CUMULATIVE to 31/12/67 (MMcf)	TOTAL AUTHORIZED IMPORTS (MMcf)	REMAINING UNDER LICENCE (MMcf) (e)
	DAILY (Mcf)	ANNUAL (MMcf)										
14. Trans-Canada Pipe Lines Ltd. EO-1-64	140,000	N/S	-	-	-	2,511	-	-	-	2,511	2,500	N/A
15. Trans-Canada Pipe Lines Ltd. EO-2-64(AO-1)	150,000	N/S	-	-	-	1,636	120	-	-	1,756	3,450	N/A
16. Union Gas Co. of Canada Ltd. EO-2-66	N/S	N/S	-	-	-	-	-	1,321	6,540	7,861	7,861 ^(d)	-
17. Union Gas Co. of Canada Ltd. EO-1-67	N/S	N/S	-	-	-	-	-	-	2,974	2,974	7,861 ^(d)	4,887
18. Trans-Canada Pipe Lines Ltd. EO-2-67	N/S	N/S	-	-	-	-	-	-	389	389	500	N/A
TOTAL			43,653	5,479 ^(r)	6,825 ^(r)	9,642 ^(r)	17,746 ^(r)	44,606 ^(r)	70,463	198,414 ^(r)		

(a) it may not be possible to import total remaining volumes under licences/orders because of maximum daily and annual volume restrictions
 (b) licence cancelled January 1966
 (c) the quantity of natural gas imported under Licences GLI-1 and PC 1956-1848 in each of the years 1965, 1966 and 1967 shall not exceed 15.5 Bcf.

(d) converted from "wet base" to "dry base" for purpose of comparability.

r revised

N/S not specified

N/A not applicable

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EXPORTS OF CRUDE OIL AND EQUIVALENT TO THE UNITED STATES
(Barrels of 35 Canadian Gallons)

Total Districts I-IV

APPENDIX IX (cont'd)

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*Includes 451,188 barrels (1,236 barrels per day) transshipped to Atlantic Richfield, Los Angeles, California from Anacortes, Washington

APPENDIX X

IMPORTS OF CRUDE OIL AND PETROLEUM PRODUCTS 1966 AND 1967

	<u>Barrels Daily</u>	
	<u>1966</u>	<u>1967*</u>
Crude Oil	434,378	448,056
Petroleum Products	163,477	186,829
TOTAL	597,855	634,885

* subject to revision

Source: Company reports to the National Energy Board

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APPENDIX XI

PIPE LINE LEAKS, BREAKS AND MALFUNCTIONS

The following is a summary of leaks, breaks, malfunctions and other pipe line incidents reported to the Board during 1967 by companies under the jurisdiction of the National Energy Board:

<u>Origin of Reported Incidents</u>	<u>Number of Incidents</u>	<u>Remarks</u>
Corrosion	3	
Defective Line Pipe	63	Thirty-eight were small leaks resulting from minor defects in the longitudinal seam of pipe, while twenty-four occurred during testing of the pipe line, and one leak resulted from a "hard" spot in pipe metal which was associated with excessive laminated intrusions.
Defective Equipment	6	These failures occurred in compressor and pumping stations.
Defective Station Piping	3	
Defects in Circumferential Field Welds	3	
Other Incidents	4	Three incidents resulted from damage by construction equipment, the other when a blowdown valve was hit by lightning.
	<hr/>	
TOTAL	82	
	<hr/>	

APPENDIX XII

EXPORTS OF ELECTRIC POWER AND ENERGY

A. NEW ORDERS ISSUED IN 1967 PURSUANT TO SECTION 6A OF THE REGULATIONS UNDER PART VI OF THE ACT*

APPLICANT	CLASS	KILOWATTS	ANNUAL KILOWATTHOURS (MILLIONS)	TERM FROM DATE OF ISSUE - MONTHS	ISSUED	ORDER NUMBER
1. Quebec Hydro-Electric Commission	Firm	20	0.100	36	14/ 4/67	ELO-64
2. Quebec Hydro-Electric Commission	Firm	12	0.024	36	14/ 4/67	ELO-65
3. Quebec Hydro-Electric Commission	Firm	45	0.085	36	14/ 4/67	ELO-66
4. Quebec Hydro-Electric Commission	Firm	3	0.003	36	14/ 4/67	ELO-67
5. Quebec Hydro-Electric Commission	Firm	2	0.0007	36	14/ 4/67	ELO-68
6. Quebec Hydro-Electric Commission	Firm	15	0.030	36	4/ 5/67	ELO-69
7. Quebec Hydro-Electric Commission	Firm	23	0.075	36	4/ 5/67	ELO-70
8. The Canadian Transit Company	Firm	100	0.025	36	15/ 6/67	ELO-71
9. The New Brunswick Electric Power Commission	Firm	200	0.200	36	4/10/67	ELO-72
10. The New Brunswick Electric Power Commission	Firm	12	0.015	36	4/10/67	ELO-73
11. The New Brunswick Electric Power Commission	Firm	25	0.010	36	4/10/67	ELO-74
12. Quebec Hydro-Electric Commission	Firm	25	0.090	36	9/11/67	ELO-75
13. British Columbia Hydro and Power Authority	Firm	200	0.600	36	8/12/67	ELO-76

*under Section 6A the Board may by order authorize the exportation of not more than 4,000 kilowatts of electrical power and not more than 20,000,000 kilowatthours per year of electrical energy for a term not exceeding three years upon such terms and conditions as the Board may prescribe.

APPENDIX XII (cont'd)

page 2

EXPORTS OF ELECTRIC POWER AND ENERGY

B. AMENDING ORDERS ISSUED IN 1967 RELATIVE TO ELECTRIC POWER EXPORT LICENCES

APPLICANT	ASSOCIATED LICENCE	ISSUED	ORDER NUMBER
1. The New Brunswick Electric Power Commission	EL-24	15/12/67	A0-2-EL-24
2. The New Brunswick Electric Power Commission	EL-25	15/12/67	A0-1-EL-25
3. The New Brunswick Electric Power Commission	EL-26	15/12/67	A0-2-EL-26
4. The New Brunswick Electric Power Commission	EL-27	15/12/67	A0-1-EL-27
5. Cedars Rapids Transmission Company Limited	EL-29	15/12/67	A0-1-EL-29

* * *

APPENDIX XIII

EXPORTS OF ELECTRIC ENERGY - CALENDAR YEAR 1967

EXPORTER	LICENCE NUMBER	THOUSANDS OF KILOWATTHOURS				REPORTED DOLLAR VALUE OF EXPORT	
		LICENCE AUTHORIZATION		GROSS ENERGY EXPORTED		FIRM	INTERRUPTIBLE
		FIRM	INTERRUPTIBLE	FIRM	INTERRUPTIBLE		
1. Maine and New Brunswick Electrical Power Company Limited	EL-22 EL-23	250,000	25,000	122,675	5,151	\$ 1,028,892.00	\$ 10,170.00
2. Fraser Companies, Limited	EL-37 EL-38	120,000	30,000	86,043	29,016	817,428.50	275,652.00
3. The New Brunswick Electric Power Commission	EL-24 EL-25 EL-26 EL-27 ELO-72 to 74	16,000 105,000 225	115,000 115,000	4,796 2,190 117	48,902 34,798	50,252.27 17,381.56 4,117.29	354,404.27 276,289.78
SUB TOTAL NEW BRUNSWICK				215,821	117,867	1,918,071.62	916,516.05
4. Cedars Rapids Transmission Co., Ltd.	EL-29		1,200,000				
5. Quebec Hydro-Electric Commission	ELO-64 to 70 & 75	408		316	195,994	5,349.87	486,189.25
6. Southern Canada Power Company Limited	AO-1-EL-30 AO-1-EL-31	19,850	61,250	15,105	10,157	188,810.38	59,874.71
SUB TOTAL QUEBEC				15,421	206,151	194,160.25	546,063.96

EXPORTS OF ELECTRIC ENERGY - CALENDAR YEAR 1967

EXPORTER	LICENCE NUMBER	THOUSANDS OF KILOWATTHOURS				REPORTED DOLLAR VALUE OF EXPORT	
		LICENCE AUTHORIZATION		GROSS ENERGY EXPORTED		FIRM	INTERRUPTIBLE
		FIRM	INTERRUPTIBLE	FIRM	INTERRUPTIBLE		
7. The Hydro-Electric Power Commission of Ontario	EL-32 EL-33 EL-34	15,000	4,500,000 105,000	1,464	2,410,109 25,512	2,927.30	\$ 10,008,846.93 104,223.39
8. Canadian Niagara Power Company Limited	EL-35 EL-36	307,000	205,000	306,866	70,619	1,658,177.52	317,783.90
9. The Ontario-Minnesota Pulp and Paper Co., Limited	EL-28	100,740		91,154		567,527.63	
10. The Detroit & Windsor Subway Co.	ELO-62	1,000		566		-	-
11. The Canadian Transit Company	ELO-71	25		24		-	-
SUB TOTAL ONTARIO				400,074	2,506,240	2,228,632.45	10,430,854.22

... 3

EXPORTS OF ELECTRIC ENERGY - CALENDAR YEAR 1967

EXPORTER	LICENCE NUMBER	THOUSANDS OF KILOWATTHOURS				REPORTED DOLLAR VALUE OF EXPORT	
		LICENCE AUTHORIZATION		GROSS ENERGY EXPORTED		FIRM	INTERRUPTIBLE
		FIRM	INTERRUPTIBLE	FIRM	INTERRUPTIBLE		
12. B.C. Hydro and Power Authority	AO-1-EL-8	4,000		3,293		\$ (a)	\$
	AO-3-EL-8		1,500,000		543,343		(a)
	ELO-60	300		88		(a)	
13. Cominco Limited	AO-1-EL-20		500,000		57,317		(a)
14. West Kootenay Power & Light Company Limited	ELO-63	50		31		613.75	
SUB TOTAL BRITISH COLUMBIA						613.75	(a)
TOTAL CANADA				634,728	3,430,918	4,341,478.07 ^(b)	11,893,434.23 ^(b)

(a) not reported

(b) not including items 12 and 13

* * * *

APPENDIX XIVTOTAL CANADIAN ELECTRIC ENERGY SUPPLY AND TRADE WITH THE UNITED STATES - CALENDAR YEAR 1967(MILLIONS OF KILOWATTHOURS)

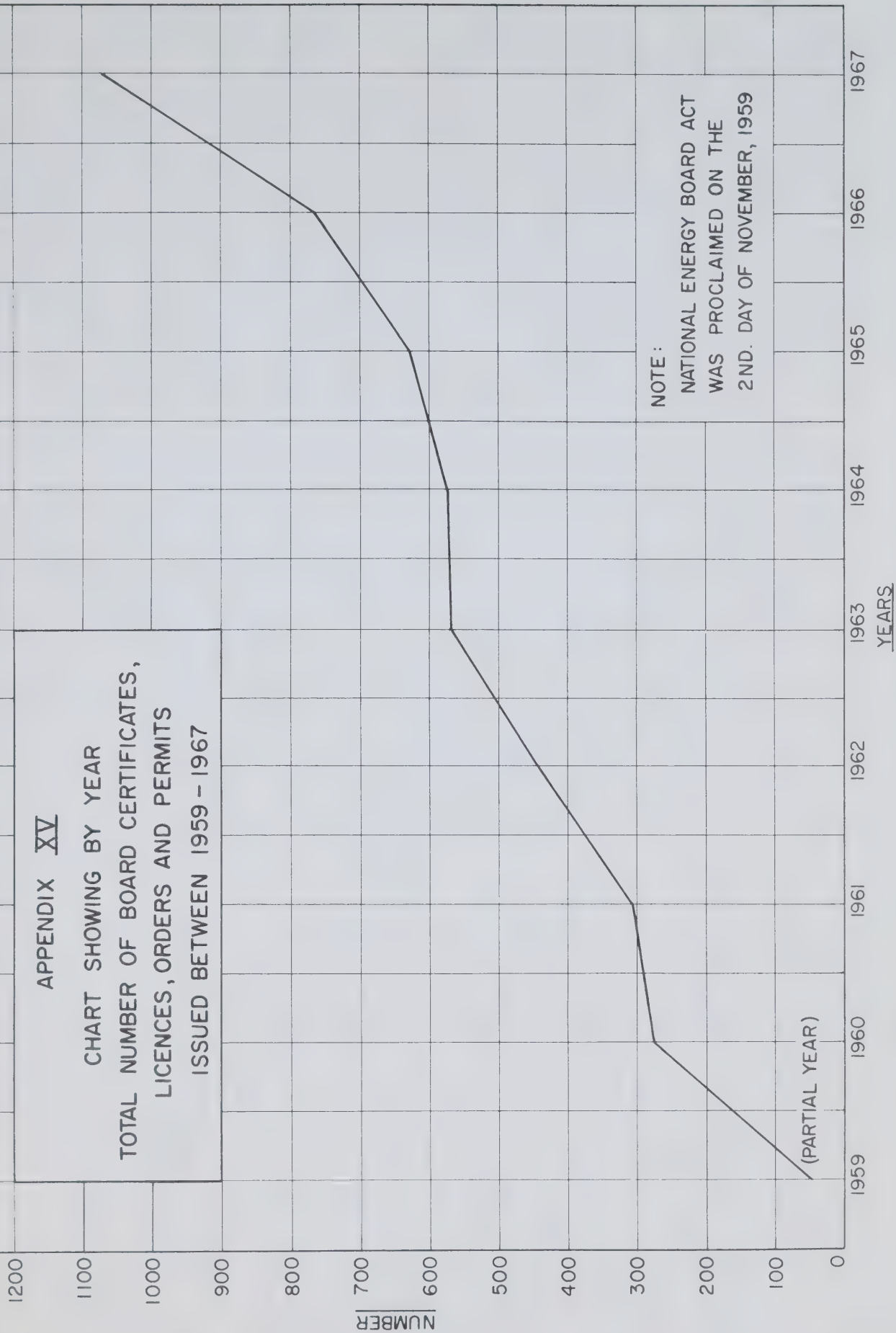
Electric Energy Generation for all Canada 1967 -	164,617	(preliminary)
Electric Energy Importation from U.S.A. 1967 -	4,142	"
Canadian Energy Supply for 1967 -	168,759	"
Electric Energy Export (Gross) to U.S.A. 1967 -	635	(firm) - 0.4% of Canadian Supply
	3,431	(interruptible) - 2.3% of Canadian Supply

APPENDIX XV

CHART SHOWING BY YEAR
TOTAL NUMBER OF BOARD CERTIFICATES,
LICENCES, ORDERS AND PERMITS
ISSUED BETWEEN 1959 - 1967

APPENDIX XV

NOTE:
NATIONAL ENERGY BOARD ACT
WAS PROCLAIMED ON THE
2ND. DAY OF NOVEMBER, 1959

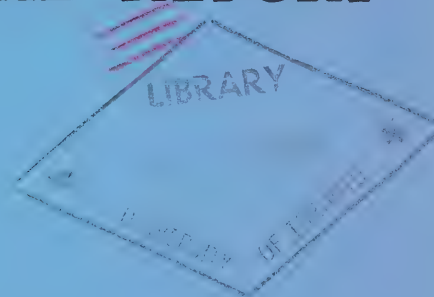




Government
Publication

NATIONAL ENERGY BOARD

ANNUAL REPORT



FOR THE YEAR ENDED
31 DECEMBER 1968

The Queen's Printer
Ottawa, Canada
1969

Cat. no. NE1-1968



NATIONAL ENERGY BOARD

ANNUAL REPORT

FOR THE YEAR ENDED
31 DECEMBER 1968

NATIONAL ENERGY BOARD
OTTAWA 1, ONT.



OFFICE NATIONAL DE L'ÉNERGIE
OTTAWA 1, ONT.

FILE NO. 7-2-8
DOSSIER

31 March 1969

The Honourable Otto E. Lang, P.C.,
Acting Minister of Energy, Mines and Resources,
O t t a w a.

Dear Sir:

In accordance with the provisions of
Section 91 of the National Energy Board Act,
Statutes of Canada, 1959, Chapter 46, I have
the pleasure to submit the Annual Report of the
Board for the year ending 31 December 1968.

Yours faithfully,

A handwritten signature in cursive script, appearing to read "Robert D. Howland".

(Robert D. Howland)
Chairman

(i)

NATIONAL ENERGY BOARD

R. D. Howland - - Chairman
D. M. Fraser - Vice-Chairman
H. L. Briggs - Member
Maurice Royer - Member
J. G. Stabback - Member
Robert A. Stead - Secretary

B. H. Whittle - Assistant Secretary
T. L. de Fayer - Director, Economics Branch
W. A. Scotland - Chief Engineer, Engineering Branch
E. B. McDougall - Financial Adviser, Financial Branch
F. H. J. Lamar - Board Counsel, Law Branch
J. G. Debanné - Director, Operations Research Branch

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INTRODUCTION

This, the tenth Annual Report of the National Energy Board, presents a resumé of the activities of the Board in the discharge of its statutory responsibilities during 1968.

The National Energy Board, established in 1959 under authority of the National Energy Board Act, consists of five members who are appointed by the Governor in Council for a period of seven years or until the age of seventy. The Governor in Council also appoints the Secretary of the Board.

On 30 June 1968, Mr. Ian N. McKinnon, Chairman of the Board since its inception, retired. He was succeeded as Chairman by Dr. Robert D. Howland who had held the appointment of Vice-Chairman since the establishment of the Board. Mr. Douglas M. Fraser, also one of the original Members of the Board, was appointed Vice-Chairman, and Mr. Jack G. Stabback, formerly the Board's Chief Engineer, became a Member. These three appointments were effective 1 July 1968.

The Board's functions and responsibilities, as set forth under the National Energy Board Act, relate to both regulatory and advisory issues which become closely intertwined in the day-to-day operation of the Board. The Board's main regulatory functions require quasi-judicial decisions, such as the approval of pipe line projects which

come under its jurisdiction, the export of gas and electrical power and the import of gas. These decisions in turn require the approval of the Governor in Council before they can be put into effect. Thus, the Board's regulatory functions are a formalized means of establishing advice to the Governor in Council on matters affecting the national interest. This advice is of a kind requiring quasi-judicial treatment rather than the less formal procedures normally provided in the preparation of public service advice to Ministers.

The expertise required for the development of sound and knowledgeable advice is applied in both the advisory and regulatory roles of the Board. For either of these purposes, the Board has acquired a staff to provide it with expert advice in the fields of economics, finance, engineering, operations research and law, all of which is supported by an administrative service. In accordance with the intent of the Act such expertise is being used to full potential in both roles. As at 31 December 1968, the establishment of the Board consisted of 146, including the Board Members and Secretary, and represented an increase of eight over the previous year.

For the purposes of parliamentary appropriation, the work of the Board has been defined as falling within a single program, namely, the "Administration of the National Energy Board Act". Because the regulatory and advisory

functions are so inter-related, subdivision of parliamentary appropriations into two or more programs has been rejected as impractical.

The objectives of the Board's program are to assure the best use of energy resources in Canada; to regulate in the public interest the construction and operation of oil and gas pipe lines subject to the jurisdiction of Parliament, the charges for transmission by such pipe lines, the export and import of gas, the export of electrical power and the construction of those lines over which such power is exported; as well as to study and keep under review all matters affecting energy and sources of energy within the jurisdiction of Parliament, and to recommend to the Minister such measures as the Board may consider necessary or advisable in the public interest with regard to such matters.

The budget appropriation of the Board for the 1968-69 fiscal year totalled \$1,602,000 of which \$1,339,000 was for salaries and \$263,000 was for all other expenses.

OIL AND GAS

(a) Exploration and Development

The Board is required by statute to keep under review events which influence the status and growth of hydrocarbon reserves. The Board's staff keeps informed of the activities in the hydrocarbon industries at home and abroad in order to appraise trends and developments in relationships that influence the progress and well-being of domestic operations. Events elsewhere can significantly affect the rate of development of hydrocarbon resources in Canada. A map showing the location of the significant oil and gas developments in 1968 in Canada is to be found on the following page.

The exploration and producing sectors of the industry in Canada expanded during 1968 with total spending reaching an estimated total of \$1,300 million, which exceeds the 1967 figure by \$130 million.

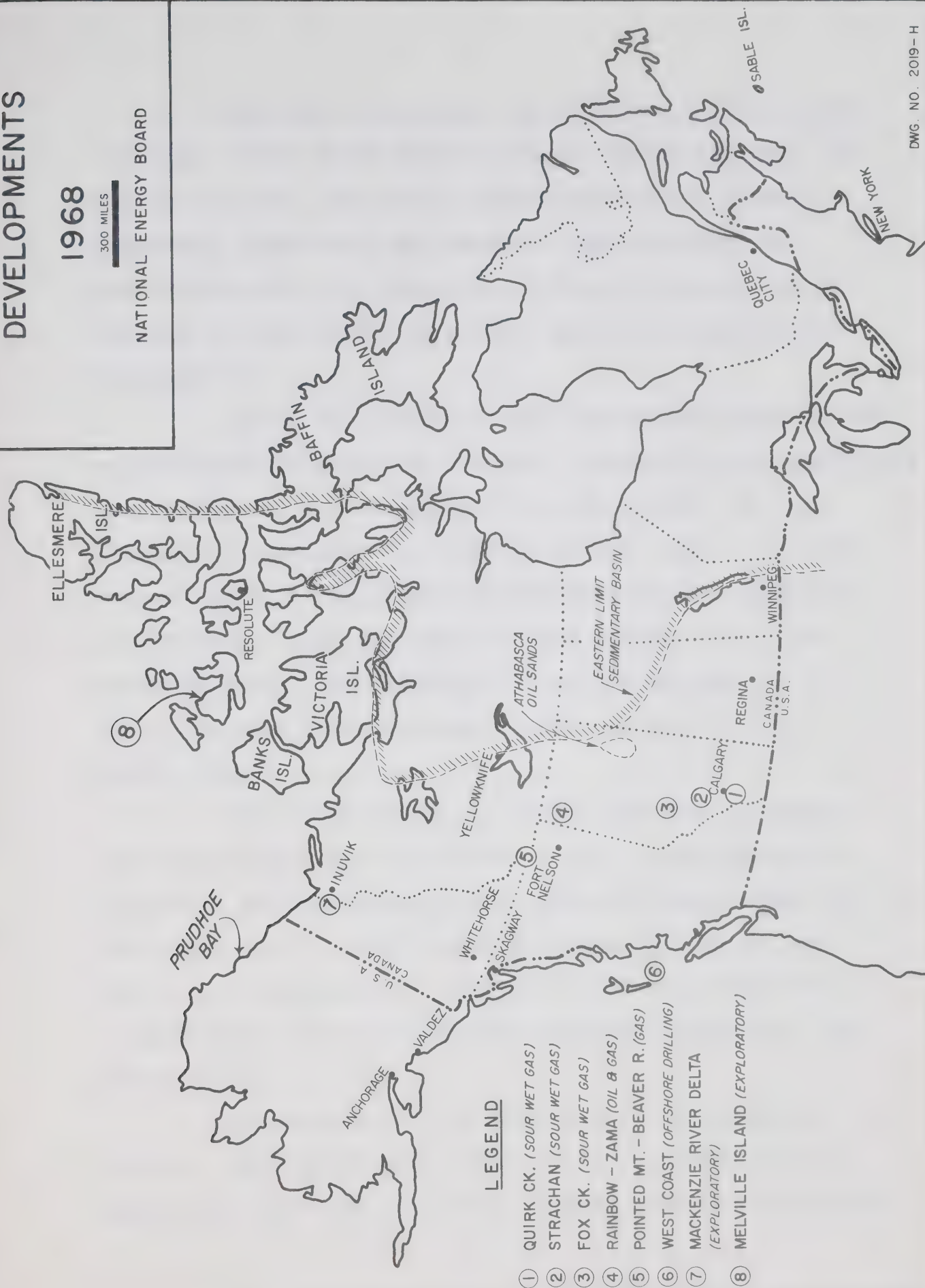
The Prudhoe Bay oil and gas discovery on the north slope of Alaska is considered to be one of the largest and most significant in the annals of North American oil. Its importance can be seen by the fact that the reported crude oil reserves estimated by industry consultants at five to ten billion barrels, are approximately equal to Canada's eight billion barrels or about one-quarter of those of the United States of America in 1967. This comparison excludes non-conventional oil sands and oil shales.

OIL AND GAS DEVELOPMENTS

1968

300 MILES

NATIONAL ENERGY BOARD



LEGEND

- ① QUIRK CK. (SOUR WET GAS)
- ② STRACHAN (SOUR WET GAS)
- ③ FOX CK. (SOUR WET GAS)
- ④ RAINBOW - ZAMA (OIL & GAS)
- ⑤ POINTED MT. - BEAVER R. (GAS)
- ⑥ WEST COAST (OFFSHORE DRILLING)
- ⑦ MACKENZIE RIVER DELTA (EXPLORATORY)
- ⑧ MELVILLE ISLAND (EXPLORATORY)

The Board recognizes the potential impact of this discovery on the North American supply-demand patterns. At the end of 1968, the Board, together with other Federal Government Departments and Agencies, was studying the implications that the marketing of this oil would have on Canadian production and on present and future markets for Canadian oil.

One of the effects of the Prudhoe Bay discovery was an unprecedented amount of activity in obtaining and exercising land permits in Arctic Canada, not only onshore but for a considerable distance out over the Beaufort Sea. Increased exploration activity is already underway in this relatively unknown area. Deep drilling is being carried out in the Mackenzie Delta. The Anderson Plains, to the east of the Delta, are also being evaluated with a series of stratigraphic tests.

The steady growth in natural gas reserves despite increasing production is evidence of the growing potential of natural gas as a major energy source for Canada and, to the extent that a surplus over Canadian requirements may exist, as a supplement to the United States gas supplies and a significant element in Canadian commodity exports to the United States.

Exploration for and discovery of gas continued in Alberta, with considerable incentive being attributable to continuing high sulphur prices. Several important additions

were made to reserves, the most significant of which was along the Kaybob South sour wet gas trend in the west-central part of the province. This occurrence is in a thick carbonate bank of Devonian age at depths of 10,000 feet. Cycling plants are being constructed whereby the natural gas liquids and the sulphur will be removed and the dry residue gas returned to the reservoir for pressure maintenance purposes.

Several discoveries of Devonian reefs which contain sour wet gas in the Strachan area of western Alberta have led to an acceleration of exploratory drilling along a 30-mile stretch.

A gas discovery in 1967 at Quirk Creek in the foothills sector triggered additional exploration which resulted in related nearby gas finds in 1968. These reservoirs are in beds of Mississippian age which have been thrust and faulted to form large accumulations similar to such other foothills structures as Turner Valley.

There was an up-turn in drilling activity in northernmost British Columbia adjacent to the Northwest Territories and the Yukon in the wake of previous important gas discoveries in large folded foothills structures.

A sustained and orderly exploration program began in the Arctic Islands, which included the staking by Panarctic Oils of its first wildcat location on Melville Island.

The Board assesses all exploratory results as they become available to determine the potential magnitude of any discovery and its impact on Canadian reserves.

The Hudson Bay sedimentary basin continues to be an area of interest, mainly because geophysical surveys conducted by the Geological Survey of Canada indicate considerable sedimentary thicknesses.

Considerable activity continued in the Rainbow-Zama area of northwestern Alberta. Very large quantities of oil were discovered in carbonate rocks of Devonian age in February 1965. Exploration in this unusual geological environment has been responsible for bringing about great advances in geophysical techniques, and a broadening of the understanding of the subsurface regional geology. These in turn have stimulated activity in other areas of the Western Canadian Sedimentary Basin. One of these is the Winnipegosis trend of Saskatchewan where a co-ordinated program of extensive drilling involving 50 wildcat tests was in progress at the year's end.

The National Energy Board has kept under study both the existing and the proposed schemes for extraction and upgrading of bitumen from the Athabaska Oil Sands. The staff also keeps abreast of the research into, and field experiments on, heavy oil recovery in Alberta.

Although the Colorado oil shales in the United States have been exploited only on a very small scale, sporadically, in pilot plants, the Board's staff continues to review the latest developments in this potentially large source of synthetic crude.

(b) Oil - Production, Transportation and Markets

In 1968 the average daily rate of production of crude oil and natural gas liquids reached a new record high of approximately 1,185,000 barrels. The increase of some 80,000 barrels a day over the rate for 1967 was in excess of the average annual volume increase so far recorded for the 1960's.

Domestic demand accounted for more than half of the production increase. Shipments of western Canadian oil to Ontario refineries, which had declined slightly in 1967, increased once more.

The Board continued to be concerned as to the adequacy of refinery capacity in Ontario relative to oil product demand in the area west of the Ottawa Valley which, under current national oil policy guidelines, should be supplied "substantially" with products refined from Ontario crude. Accordingly, the Board undertook a series of separate examinations of the matter with senior representatives of companies engaged in refining and marketing operations in Ontario. Following a first round of discussions, the Board made a detailed survey to permit objective appraisal of the anticipated supply situation in the designated area of Ontario over a three-year forward period. Analysis of the returns submitted by the companies concerned was incomplete at the year-end.

The movement of gasoline refined from foreign crude oil to markets west of the Ottawa Valley is another important

facet of this matter. Although small in volume and in relation to the total market, this foreign-origin gasoline can exert a disruptive influence in the market and tends to discourage the expansion of Ontario refining capacity by companies complying with the purposes of federal oil policy.

Public attention was drawn to these gasoline shipments in May 1968, when a company refining in Ontario announced a cut-back in its level of operations and a corresponding reduction in its purchases of western Canadian oil. The company linked its decision with the continued movement of gasoline of foreign origin to markets west of the Ottawa Valley. The Board, as Government's instrument for the implementation of national oil policy, engaged in discussions with companies involved in this situation and by October these purchases of western oil were fully restored.

Pipe line fill represented an important component of domestic demand for Canadian oil in 1968. Substantial volumes of oil were required to fill new pipe lines in the Prairie Provinces and in addition, some two and a half million barrels were needed to fill the first section, to Chicago, Illinois, of the Lakehead Pipe Line Company's new loop line from Superior, Wisconsin, to Sarnia, Ontario. Canadian oil in this line, as in the rest of the Lakehead system, is in bond for customs purposes until delivered to connecting carriers in the United States. In December, the first exports

of Canadian oil transported via the new Chicago pipe line took place with deliveries into the facilities of the Tecumseh Pipe Line Company for on-shipment to refineries at Detroit, Michigan, and Toledo, Ohio.

Export demand for Canadian oil was exceptionally strong in the United States east of the Rockies as illustrated in Appendix IX. This was associated with a lack of pipe line capacity for United States crude to adequately meet domestic market demand in the Great Lakes area pending the completion in September 1968 of new United States pipe line facilities.

For Canadian producers, the effect of a lower export rate in the fourth quarter of the year was cushioned by the simultaneous need to provide the initial line-fill previously mentioned. The Board is particularly grateful for the understanding and co-operation extended to it by the industry in effecting the adjustments to meet the changing supply and demand situation in the area of our export markets.

Exports to the west coast of the United States were down from the levels achieved in the circumstances attendant on the Middle-East emergency of 1967 (see Appendix IX). However, the volume of Canadian oil exported to this area in 1968 substantially exceeded estimates made at the beginning of the year.

(c) Gas - Production, Transportation and Markets

The Board has continued to review and study the various gas reservoirs in Western Canada. This fundamental study aims to provide the information necessary for the Board to understand the structure and growth of gas reserves, both present and forecast. Predicting Canadian requirements and relating these to the reserves gives a measure of the surplus supplies. This assists the Board in making decisions concerning exports and imports of natural gas, consistent with the objective of assuring adequate supplies to the Canadian consumer and at the same time encouraging the natural gas industry to continue to develop new Canadian reserves.

The Board's staff continues to keep informed on various proposals and new facilities for the improvement of supply, deliverability and system reliability in the Canadian natural gas industry.

The Great Lakes Transmission Company project, a new pipe line to supply Canadian gas to Eastern Canada via the United States, was finally completed and put into operation late in 1968. The project, approved by this Board in 1966, had a long and stormy passage. Federal Power Commission approval of the scheme in June 1967, was appealed by Northern Natural Gas, thus triggering a complicated series of hearings in the United States courts and before the Federal Power Commission. These culminated with a request by Northern

Natural Gas for an Order to halt construction pending reconsideration of the case. This was denied and a subsequent request for a rehearing of that action was also refused in November 1968.

Although the flow of gas to Eastern Canada was thus assured for the 1968-69 heating season by the physical completion of the facilities, ownership of the United States portion of the line, now held equally by Trans-Canada Pipe Lines Limited and American Natural Gas Company, has still to be reviewed by the Federal Power Commission. Whatever the outcome of this matter, it is expected that the line will continue to deliver increasing volumes of Canadian gas to Ontario markets.

In a somewhat interrelated situation, the Board denied the April 1968 application of Union Gas Company of Canada, Limited for authorization to import an additional 1,108 Bcf of gas from Panhandle Eastern Pipe Line Company over a period of 20 years. A companion application for a certificate to authorize the construction of additional facilities required for the transmission of the gas proposed to be imported was also denied by the Board.

In its "Reasons for Decision" the Board stated that before it should issue an import licence it must be satisfied that the importation of the gas will be of some advantage to Canada. The Board concluded that, in this case, the advantages

of using indigenous resources were not off-set by other factors and, therefore, denied the application.

Based upon its assessment of the evidence, the Board concluded that Union's contention that there would be a cost advantage from the proposed import in contrast to purchasing the additional gas from Trans-Canada Pipe Lines Limited was not substantiated because of the extreme sensitivity of the contractual arrangements to price increase and the marginal nature of the estimated benefit that would accrue from the import.

In December 1967 the Board issued a dismissal order with respect to an application by Westcoast Transmission Company Limited to amend gas export licence GL-23 to conform to conditions laid down by the Federal Power Commission. In January of 1968 new proposals were presented to both Canadian and United States regulatory authorities by Westcoast and El Paso Natural Gas Company, respectively. The new proposals were approved in both countries. In Canada the result is that Westcoast now has approval to export 505,000 Mcf/d until 1977 and 202,000 Mcf/d from then until 1988 when GL-23 expires.

Westcoast and El Paso have recently agreed, subject to regulatory authorization, on a further increase in supplies of Canadian gas to meet the growing demand in the United States Pacific Northwest area.

An application by Alberta and Southern Gas Company Limited for the removal from the Province of Alberta of an additional 220,000 Mcf/d, to be effected in equal instalments in 1970 and 1971, was at year-end still under consideration before the Alberta Oil and Gas Conservation Board, and would if approved be followed by a related application to the Board for an export licence.

(d) Pipe Line Operation - General

An important function of the Board is to assure that the design, operation and maintenance of pipe lines coming under its jurisdiction is consistent with public safety. The Board conducts a continuous surveillance of design and operation of pipe lines, analyzes causes of failures and malfunctions, and seeks to remove causes and prevent recurrence so far as possible. A list of incidents which occurred during 1968 is included in Appendix XI.

Several meetings were held with pipe line company management in order to review pipe specifications, reliability of pipe line equipment, and design of compressor and metering stations in relation to fire, lightning and explosion hazards. The Board met with representatives of the Canadian Petroleum Association to discuss pipe specifications, pipe line surveys and profiles and construction practices, particularly through agricultural land.

The Board also conducted an investigation of a pipe line malfunction in the Yukon Territories at the request of the Department of Indian Affairs and Northern Development.

In 1968, the Board issued a total of 1,008 certificates, licences, permits and orders compared with 1,079 during 1967. These included 577 orders relating to the crossing of and by pipe lines with regard to other utilities and highways, 21 orders approving plans, profiles and books of reference, and 109 orders granting leave to open to oil and gas pipe lines, including orders authorizing the operation of existing facilities at operating pressures higher than those previously authorized. Generally speaking, these orders relate to the protection of the public and pipe line facilities and to safety in pipe line operations. The Board carried out numerous field inspections concerning the pressure testing of new oil and gas pipe lines, the re-testing and internal sand-blasting of existing pipe lines and the testing of gas compressor and oil pumping stations. Complaints received from individual landowners in regard to pipe line construction resulted in field inspections by the Board's staff.

In co-operation with the Canadian Transport Commission, proposed regulations are being prepared to apply to applications seeking certificates of public convenience and necessity for the construction and operation of combined pipe lines for the transportation of hydrocarbons and commodities.

The Board, in co-operation with the Department of Energy, Mines and Resources and the Dominion Bureau of Statistics, completed work on two maps issued in 1968 showing respectively gas pipe lines and oil pipe lines in Canada.

ELECTRIC POWER

During 1968 the Board provided advice to the Federal Government and to various Provincial Governments and their agencies on proposals to expand power systems and to build interconnections.

Recommendations have been made to the Department of Energy, Mines and Resources on the basis of a technical and economic evaluation carried out by the Board of a proposal to supply the major part of Newfoundland's power needs to 1992 from Churchill Falls.

The Board, acting at the request of the Atlantic Development Board, and Montreal Engineering Company Limited acting for the Maritime Electric Company completed a joint study of future power supply alternatives for Prince Edward Island. This economic study compared a possible system expansion for the Island which would not include interconnection with the mainland, to various schemes which would interconnect the Island system with the Maritime Power Pool on the mainland.

The Board's staff collaborated with the Atlantic Tidal Power Programming Board in studies on the electric power aspects of the Fundy Tidal Power scheme. Examined were the technical and economic aspects of using tidal power and energy to meet future power requirements in the Maritimes and Quebec, and the possibility of supplying some power to the New England States during the early years of operation of tidal power facilities.

These power development studies involved the preparation of long range load forecasts for various parts of Canada and an analysis of alternative generation development programs to meet the loads.

Studies on interconnections took into account the successful operation of the 735,000 volt transmission lines in Quebec and the 500,000 volt transmission systems in Ontario and British Columbia and the transmission facilities being built in Manitoba and British Columbia. It has now become a fact of power utility life that operation of an international power line between a Canadian power system and a United States power system automatically interconnects the Canadian system with one of the existing power pools in the United States which in turn is interconnected with others to form a vast power pool encompassing most of Canada and the United States.

The power systems in British Columbia, Eastern Ontario, New Brunswick and Nova Scotia are now interconnected via the United States power systems and within a few years those in Saskatchewan, Manitoba and Western Ontario will also be incorporated in the interconnected North American Power pools. These pooled facilities may be used to realize benefits but may also cascade problems from one power system to another.

In accordance with the National Power Policy announced in Parliament in 1963, the Government, on recommendation by the Board, may approve the export of various classes of inter-utility transfer. These enable Canadian utilities to gain benefits from the provision of standby service in emergencies, the exchange of economy energy, the sale of surplus interruptible energy, diversity interchanges, maintenance co-ordination, and short term exports incidental to integrated development programs. The major power pools in North America have formed committees to develop satisfactory standards for interconnected operation to avoid large scale blackouts such as that which occurred on 9 November 1965. The Board maintains its interest in the work being done in this field in Canada and the United States to the end that Canadian utilities take maximum advantage of participation in the continent-wide power pool while protecting the Canadian public interest.

Interchanges between interconnected utilities which have their peak loads at different times of the day or their annual peaks in different seasons of the year can bring benefits to the parties included. As part of its continuing studies on a national power grid, the Board is studying the value of various Canadian system interconnections.

To carry out its advisory and regulatory work, the Board updated its information on power systems in Canada and in the adjacent areas of the United States. Canadian electric power development plans and innovations in the electric power field were kept under review by means of visits to Canadian utilities, manufacturers and associations and by staff attendance at conferences and committees organized by various associations. Data accumulation continued on thermal station production and fuel costs so as to maintain an insight into the competitive use of the various fuels in electric power plants.

Appendices I, II and III list the certificates of public convenience and necessity, licences and orders for the exportation of power issued during 1968 under Part III and Part VI of the National Energy Board Act.

Appendix XIII provides details of electric energy exports for the year.

FINANCIAL ASPECTS

During 1968 the Board continued its surveillance of the financial affairs, accounting practices, rates, tolls and tariffs of pipe line companies under its jurisdiction.

The staff of the Board reviewed and analyzed the prescribed quarterly and annual financial reports which are prepared and filed by the companies. Certain reports dealt with special financial information covering such matters as cash flow and budget forecasts, construction cost reports, depreciation policies and financing arrangements. The Board reviewed and approved the accounting treatment of particular transactions in accordance with the provisions of its Uniform Accounting Regulations.

The Board continued to review and analyze the agreements and contracts covering the sale, purchase and transportation of gas by companies under its jurisdiction. Information about volumes of throughput, revenues and expenses of pipe line companies, was analyzed regularly in accordance with the Board's practice.

Field examinations of the operating accounts of four major pipe line companies were conducted during the year. These examinations enabled the Board to keep informed on significant cost information with respect to operating and plant accounts and, in addition, ensured that the companies were maintaining their accounts in conformity with the Uniform Accounting Regulations. The Board intends to continue the policy of regular field examinations.

Revision of the Board's Uniform Accounting Regulations for Gas Pipe Line Companies was completed late in the year and it is anticipated that formal approval of the new Regulations will be given in 1969. Several meetings with representatives of the gas pipe line industry took place for the purpose of exchanging views on the form and content of the proposed new Regulations and, where appropriate, discussions were held with other parties who expressed an interest in such Regulations.

No formal proceedings with respect to the regulation of rates, tolls and tariffs have been held. Discussions continued, however, on rate matters between the Board and companies under its jurisdiction and it appears likely that rate hearings will be necessary in the near future. A firm of chartered accountants, experienced in regulatory work, has been retained to conduct a rate study of a gas pipe line company under the Board's jurisdiction in co-operation with the staff of the Board. A similar study had previously been initiated relating to one of the oil pipe line companies.

The Board conducted a study of the depreciation policies of one of the large gas pipe line companies under its jurisdiction as well as a study of various factors which could influence financing arrangements in the pipe line industry. In addition, discussions were held with various members of the national and international financial community to assist in the assessment of the availability and cost of capital to the pipe line industry.

SUPPORTING ENERGY STUDIES

Economic analysis and consultations in connection with long term energy forecasting continued during 1968. The energy forecasts for the residential/commercial, industrial and transportation sectors for all provinces of Canada were further developed, with the assistance of a computer program. Following consultations across the nation with representatives of government and industry, the program was extensively used by the Board's staff in sensitivity analyses to test the effects of changes in the assumptions. An assessment of the potential export market is an essential part of such a study.

During the year the Board published a consolidation of the historical energy statistics which were assembled to provide the basis for the foregoing work on long term energy forecasting. The material was issued in the form of a reference document in order to make it available to industry, various levels of government and other interested parties.

Development continued on the model of the energy sector of the Canadian economy which comprises a system of computer programs related to a source-to-market oil and gas investment-allocation model, a resource exploration model and several programs of a financial and policy nature. Simple as it is in its present form, the energy supply and demand model is expected to embody in increasing detail the assumptions and relationships underlying the Board's energy forecast. As such, it should provide the Board with an effective means to

consolidate, assess, review and change the forecast assumptions and relationships in the light of new developments and conditions. These activities have been supported by econometric research.

Studies primarily related to the Ontario fossil fuels model were further developed during 1968 and papers dealing with several facets of this analysis were presented at the Calgary meeting of the Canadian Economic Association in June.

Starting with a review of an existing oil exploration model and the gathering of exploration data, work progressed satisfactorily on an oil and gas discovery and industry investment decision model.

During 1968 the Board developed computer programs for determining the optimal design of a new gas pipe line system or of incremental facilities for existing systems. The Board has also prepared programs associated with such systems.

The Board continued to co-operate with the Dominion Bureau of Statistics and other federal departments and agencies in the further development of energy statistics. This work required original research and also liaison with provincial organizations and the energy industries as well as other federal agencies.

The Board undertook several Operations Research studies on behalf of the Department of Transport concerning the servicing of aids to navigation, an investment study for the replacement of Coast Guard ships on the Pacific Coast, ice-

breaking and Arctic re-supply operations, as well as marine search and rescue.

Canada's participation in the energy activities of the Organization for Economic Co-operation and Development continued to devolve upon the Board. Liaison was maintained through attendance at meetings and contributions to various projects. Work commenced during the year on the preparation of a review of Canada's Energy Policies for presentation to the Organization for Economic Co-operation and Development later in 1969. In addition, the Board has assisted the Department of National Health and Welfare in its co-ordination of the Canadian contribution to the Energy and Oil Committees' studies on environmental pollution.

The Board in co-operation with the Public Service Commission and the Department of Energy, Mines and Resources, participated with York University in the development of a graduate course in Energy Economics which is planned to commence in 1969. The course is designed to provide specialized energy-oriented economists for government and industry.

A staff study entitled "An Economic Analysis of Generation Patterns on Future Power Systems" was published during the year. This study dealt with the relative merits of nuclear plants to supply base load, fossil-fuel plants to meet the intermediate loads and pumped storage or gas turbines to meet the peak loads.

In addition, papers prepared by the Board's staff were presented at two international conferences. These were "Regional Model of the Energy Sector of the Canadian Economy" presented at the World Power Conference in Moscow in August, and "Determination of Optimal Residual Thermal Loads in a Hydro-Thermal Power System" presented at the International Conference on Operations Research in Electric Power Systems in Athens in November.

APPENDIX I

NEW CERTIFICATES OF PUBLIC CONVENIENCE AND NECESSITY PURSUANT TO SECTION 44 ISSUED DURING 1968

NATURAL GAS PIPE LINES

APPLICANT	FACILITIES	ESTIMATED COST	HEARD	ISSUED	CERTIFICATE NO.
1. Trans-Canada Pipe Lines Limited	<p>i) Approximately 194.8 miles of 36-inch diameter pipe line in the Provinces of Saskatchewan and Manitoba.</p> <p>ii) Approximately 48.9 miles of 24-inch diameter pipe line in the Province of Ontario.</p> <p>iii) Additional compression facilities at eight existing compressor stations in the Provinces of Saskatchewan, Manitoba and Ontario.</p> <p>iv) Certain additions to the metering facilities at 'Emerson Export Gate Station' in the Province of Manitoba.</p> <p>Amendment of Certificate GC-34 (correction of land description).</p>	\$56,371,000.00	5 March, 1968	10 April, 1968	GC-34
		N/A	N/A	2 May, 1968	AO-1-GC-34

N/A Not applicable

NEW CERTIFICATES OF PUBLIC CONVENIENCE AND NECESSITY PURSUANT TO SECTION 44 ISSUED DURING 1968

OIL PIPE LINES

<u>APPLICANT</u>	<u>FACILITIES</u>	<u>ESTIMATED COST</u>	<u>HEARD</u>	<u>ISSUED</u>	<u>CERTIFICATE NO.</u>
1. Interprovincial Pipe Line Company	i) Approximately 149.5 miles of 34-inch diameter pipe line in the Provinces of Alberta, Saskatchewan and Manitoba.				
	ii) Certain 'tie-in connections' and other works at five locations in the Provinces of Alberta and Saskatchewan.	\$22,561,500.00	12 March, 1968	25 April, 1968	OC-21
	iii) Additional pumping facilities and modifications at 14 existing pump stations in the Provinces of Alberta, Saskatchewan, Manitoba and Ontario.				

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NEW CERTIFICATES OF PUBLIC CONVENIENCE AND NECESSITY PURSUANT TO SECTION 44 ISSUED DURING 1968INTERNATIONAL POWER LINES

<u>APPLICANT</u>	<u>FACILITIES</u>	<u>ESTIMATED COST</u>	<u>HEARD</u>	<u>ISSUED</u>	<u>CERTIFICATE NO.</u>
1. The New Brunswick Electric Power Commission	<p>A two circuit 1.74 mile international power line to be designed and constructed for 69Kv operation to connect the power system of the Applicant at its Edmundston terminal station with a place on the international boundary 1327.8 feet from reference Monument 054 on a true bearing of South 5° 54' West. This double circuit line will interconnect the Applicant's system to the system of the Maine Public Service Company. This interconnection will be known as the Edmundston-Madawaska Interconnection.</p>	\$118,500.00	13 December, 1967	22 February, 1968	EC-III-7

* * * * *

APPENDIX II

EXEMPTION ORDERS PURSUANT TO SECTION 49

ISSUED DURING 1968

CLASS "B" CONSTRUCTION

(This is construction which, at the discretion of the Board, may be the subject of a specific exemption order pursuant to Section 49).

NATURAL GAS PIPE LINES

- (1) Trans-Canada Pipe Lines Limited, approximately 3,600 feet of 36-inch diameter line of pipe and other works connected therewith added to its pipe line system in the Province of Manitoba, estimated cost \$210,000.00, Order No. XG-1-68, dated 19 March, 1968.
- (2) Trans-Canada Pipe Lines Limited, 17.1 miles of 36-inch diameter line of pipe, together with all appurtenances and other works connected therewith added to its pipe line system, in two separate portions in the Province of Saskatchewan, estimated cost \$3,101,200.00, Order No. XG-2-68, dated 18 June, 1968.
- (3) Trans-Canada Pipe Lines Limited, 15.5 miles of 36-inch diameter line of pipe, together with all appurtenances and works connected therewith added to its pipe line system, in the Province of Manitoba, estimated cost \$2,711,400.00, Order No. XG-3-68, dated 18 June, 1968.
- (4) Trans-Canada Pipe Lines Limited, a 'Temporary Meter Station' facility and certain other works connected therewith added to its existing 'Emerson Export Gate Station' in the Province of Manitoba, estimated cost \$5,500.00, Order No. XG-4-68, dated 20 June, 1968. (This facility is now removed).
- (5) Trans-Canada Pipe Lines Limited, a new meter station known as 'Denzil Meter Station' and other works connected therewith added to its pipe line system in the Province of Saskatchewan (Unity Line), estimated cost \$22,500.00, Order No. XG-5-68, dated 20 June, 1968.
- (6) Trans-Canada Pipe Lines Limited, a new meter station known as 'Macklin Meter Station' and other works connected therewith added to its pipe line system in the Province of Saskatchewan (Unity Line), estimated cost \$16,400.00, Order No. XG-6-68, dated 20 June, 1968.

- (7) Trans-Canada Pipe Lines Limited, a new meter station known as 'Sault Ste. Marie Meter Station' and other works connected therewith added to its pipe line system, in the Province of Ontario, estimated cost \$90,800.00, Order No. XG-7-68, dated 18 July, 1968, as amended by Order No. AO-1-XG-7-68, dated 12 September, 1968.
- (8) Trans-Canada Pipe Lines Limited, (i) a new meter station known as 'St-Mathieu Meter Station' and other works connected therewith, estimated cost \$58,100.00 (ii) approximately one-half mile of 16-inch diameter line of pipe, being a 'Connecting Line', estimated cost \$65,396.00, all in the Province of Quebec, added to its pipe line system, Order No. XG-8-68, dated 18 July, 1968, as amended by Order No. AO-1-XG-8-68, dated 12 September, 1968.
- (9) Trans-Canada Pipe Lines Limited, a new meter station known as 'Metcalf Meter Station' and other works connected therewith added to its pipe line system in the Province of Ontario (Ottawa Lateral), estimated cost \$46,600.00, Order No. XG-9-68, dated 1 August, 1968, as amended by Order No. AO-1-XG-9-68, dated 12 September, 1968.
- (10) Trans-Canada Pipe Lines Limited, a temporary metering facility and other works connected therewith, located at its existing 'Trafalgar Meter Station' site, in the Province of Ontario (Niagara Extension), estimated cost \$8,885.00, Order No. XG-10-68, dated 9 August, 1968. (This facility is now removed).
- (11) Westcoast Transmission Company Limited, 5 miles of 16-inch diameter line of pipe and works connected therewith added to its pipe line system in the Peace River District, Province of British Columbia (Clarke Lake Lateral), estimated cost \$550,000.00, Order No. XG-11-68, dated 29 August, 1968, as amended by Order No. AO-1-XG-11-68, dated 17 September, 1968.
- (12) Westcoast Transmission Company Limited, an additional compressor unit and other works connected therewith added to its existing 'Blue Hill Field Compressor Station' forming part of its pipe line system, in the Province of British Columbia, estimated cost \$810,000.00, Order No. XG-12-68, dated 29 August, 1968.
- (13) Trans-Canada Pipe Lines Limited, a new meter station known as 'Osnabruck Meter Station' and other works connected therewith added to its pipe line system, in the Province of Ontario, estimated cost \$10,600.00, Order No. XG-13-68, dated 26 September, 1968.

APPENDIX II (cont'd)

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- (14) Trans-Canada Pipe Lines Limited, a new meter station known as 'Campbellford Meter Station' and other works connected therewith added to its pipe line system, in the Province of Ontario, estimated cost \$27,300.00, Order No. XG-14-68, dated 26 September, 1968.
- (15) Westcoast Transmission Company Limited, approximately 3 miles of 16-inch diameter line of pipe, together with all appurtenances and works connected therewith to be added to its pipe line system, in the Province of British Columbia (Clarke Lake Lateral), estimated cost \$521,700.00, Order No. XG-15-68, dated 31 October, 1968, as amended by Order No. AO-1-XG-15-68, dated 12 December, 1968.
- (16) Alberta Natural Gas Company, a new meter station known as 'Elko Meter Station' and other works connected therewith added to its pipe line system, in the Province of British Columbia, estimated cost \$16,500.00, Order No. XG-16-68, dated 19 December, 1968.

APPENDIX II (cont'd)

EXEMPTION ORDERS PURSUANT TO SECTION 49

ISSUED DURING 1968

CLASS "B" CONSTRUCTION

(This is construction which, at the discretion of the Board, may be the subject of a specific exemption order pursuant to Section 49).

OIL PIPE LINES

- (1) Trans-Northern Pipe Line Company, approximately 22.8 miles of 12 ½-inch OD line of pipe, together with all appurtenances and works connected therewith, added to its pipe line system, in two separate portions, in the Province of Ontario, (Ottawa Lateral), estimated cost \$1,350,000.00, Order No. XO-1-68, dated 4 July, 1968.
- (2) Trans-Northern Pipe Line Company, approximately one-half mile of 10 ½-inch OD line of pipe and other works connected therewith added to its pipe line system in the Province of Quebec, estimated cost \$30,000.00, Order No. XO-2-68, dated 1 August, 1968.
- (3) Montreal Pipe Line Company Limited, (i) one pumping unit and other works connected therewith added to its existing 'St-Cesaire Pump Station', estimated cost \$140,000.00, (ii) a 12-inch positive displacement meter and other works connected therewith at its existing 'Montreal East Terminal', estimated cost \$30,000.00, all added to its pipe line system in the Province of Quebec, Order No. XO-3-68, dated 12 December, 1968.
- (4) Murphy Oil Company Limited, approximately 59,000 feet of 6.625-inch OD line of pipe, together with all appurtenances and works connected therewith, in the Province of Alberta, estimated cost \$212,300.00, Order No. XO-4-68, dated 12 December, 1968.

APPENDIX II

EXEMPTION ORDERS PURSUANT TO SECTION 49

ISSUED DURING 1968

CLASS "B" CONSTRUCTION

(This is construction which, at the discretion of the Board, may be the subject of a specific exemption order pursuant to Section 49).

INTERNATIONAL POWER LINES

- (1) Manitoba Hydro-Electric Board, for a new international power line to operate at 7,200 volts and to connect the Applicant's system south of Sprague, in the Province of Manitoba with a commercial customer, Roseau Electric Co-Operative Incorporated, in the State of Minnesota, as a matter of border accommodation. Order No. XE-1-68, dated 21 August, 1968.

APPENDIX II (cont'd)

EXEMPTION ORDERS PURSUANT TO SECTION 49

ISSUED DURING 1968

CLASS "C" CONSTRUCTION

(This is miscellaneous construction of a routine character which, at the discretion of the Board, may be the subject of an annual blanket exemption order pursuant to Section 49).

NATURAL GAS PIPE LINES

- (1) Alberta Natural Gas Company, for certain miscellaneous facilities added to its existing pipe line system in the Provinces of Alberta and British Columbia, estimated cost \$211,900.00, Order No. XGM-1-68, dated 4 April, 1968, as amended by Orders No. AO-1-XGM-1-68, dated 12 September, 1968, and No. AO-2-XGM-1-68, dated 12 December, 1968.
- (2) Petroleum Transmission Company, for certain miscellaneous facilities added to its existing pipe line system in the Provinces of Saskatchewan and Manitoba, estimated cost \$26,500.00, Order No. XGM-2-68, dated 18 April 1968.
- (3) Peace River Transmission Company Limited, for certain miscellaneous facilities added to its existing pipe line system in the Provinces of Alberta and British Columbia, estimated cost \$1,815.00, Order No. XGM-3-68, dated 2 May, 1968.
- (4) Champion Pipe Line Corporation Limited, for certain miscellaneous facilities added to its existing pipe line system in the Provinces of Ontario and Quebec, estimated cost \$5,440.00, Order No. XGM-4-68, dated 2 May, 1968.
- (5) Westcoast Transmission Company Limited, for certain miscellaneous facilities added to its existing pipe line system in the Provinces of British Columbia and Alberta, estimated cost \$2,171,435.00, Order No. XGM-5-68, dated 4 July, 1968.
- (6) Trans-Canada Pipe Lines Limited, for certain miscellaneous facilities added to its existing pipe line system in the Provinces of Alberta, Saskatchewan, Manitoba, Ontario and Quebec, estimated cost \$11,408,982.00, Order No. XGM-6-68, dated 18 July, 1968.

APPENDIX II (cont'd)

EXEMPTION ORDERS PURSUANT TO SECTION 49

ISSUED DURING 1968

CLASS "C" CONSTRUCTION

(This is miscellaneous construction of a routine character which, at the discretion of the Board, may be the subject of an annual blanket exemption order pursuant to Section 49).

OIL PIPE LINES

- (1) Westspur Pipe Line Company, for certain miscellaneous facilities added to its existing pipe line system in the Provinces of Saskatchewan and Manitoba, estimated cost \$705,000.00, Order No. XOM-1-68, dated 21 March, 1968.
- (2) Trans Mountain Oil Pipe Line Company, for certain miscellaneous facilities added to its existing pipe line system in the Provinces of Alberta and British Columbia, estimated cost \$621,819.00, Order No. XOM-2-68, dated 21 March, 1968.
- (3) Montreal Pipe Line Company Limited, for certain miscellaneous facilities added to its existing pipe line system in the Province of Quebec, estimated cost \$116,200.00, Order No. XOM-3-68, dated 21 March, 1968.
- (4) Trans-Northern Pipe Line Company, for certain miscellaneous facilities added to its existing pipe line system in the Provinces of Ontario and Quebec, estimated cost \$260,000.00, Order No. XOM-4-68, dated 21 March, 1968.
- (5) Interprovincial Pipe Line Company, for certain miscellaneous facilities added to its existing pipe line system in the Provinces of Alberta, Saskatchewan, Manitoba and Ontario, estimated cost \$395,400.00, Order No. XOM-5-68, dated 4 April, 1968.

APPENDIX III

NEW LICENCES AND ORDERS TO EXPORT NATURAL GAS ISSUED DURING 1968

A. LICENCES - NATURAL GAS EXPORT - SECTION 82

None issued

B. ORDERS AMENDING EXISTING NATURAL GAS EXPORT LICENCES - SECTION 17

APPLICANT	ORDER NUMBER	DATE OF ISSUE	COMMENTS
1. Westcoast Transmission Company Limited	AO-2 PC1955-958	16/2/68	i) Amendment revising prices
2. Westcoast Transmission Company Limited	AO-5 GL-23	16/2/68	i) Amendment advancing the terminal date from 31/10/91 to 31/10/88 ii) Amendments revising volumes and prices
3. Westcoast Transmission Company Limited	AO-6 GL-23	22/2/68	i) Amendment terminating temporary initial volume provisions as of 21/2/68
4. Alberta & Southern Gas Company Limited	AO-1 GL-24	28/3/68	i) Amendment extending the date for filing FPC authorizations with NEB from 31/3/68 to 31/7/68
5. Alberta & Southern Gas Company Limited	AO-2 GL-24	19/9/68	i) Amendment extending the date for filing FPC authorizations with NEB from 31/7/68 to 1/12/68
6. Canadian-Montana Pipe Line Company	AO-1 GL-25	13/3/68	i) Amendment extending the date for filing FPC authorizations with NEB from 31/3/68 to 31/12/68

APPENDIX III (cont'd)NEW LICENCES AND ORDERS TO EXPORT NATURAL GAS ISSUED DURING 1968C. ORDERS - NATURAL GAS EXPORT - PART VI REGULATIONS - SECTION 6B

APPLICANT	ORDER NUMBER	DATE OF ISSUE	TERM		MAXIMUM EXPORT VOLUMES			POINT OF EXPORT
			FROM	TO	MONTHLY (MMcf)	ANNUAL (MMcf)	TERM (MMcf)	
1. Patrick T. Buckley	GO-1-68 ^(a)	29/8/68	1/6/68	31/5/73	1	5	N/S	Coutts, Alberta

(a) GO-1-68 replaced GL-7 which expired on 31/5/68.
N/S Not specified.

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APPENDIX IV

SUBSISTING LICENCES AND ORDERS TO EXPORT NATURAL GAS AS AT 31 DECEMBER 1968

EXPORTER	LICENCE OR ORDER NUMBER	POINT OF EXPORT	TERM OF LICENCE OR ORDER		MAXIMUM EXPORT VOLUMES		
			FROM	TO	DAILY (Mcf)	ANNUAL (MMcf)	TERM (MMcf)
1. Trans-Canada Pipe Lines Limited	GL-1 (AO-2)	Emerson, Man.	11/4/60	14/5/81	223,000	74,000	1,410,000
2. Trans-Canada Pipe Lines Limited	GL-2 (AO-3)	Niagara Falls, Ont.	11/4/60	31/12/68	96,900	20,663	N/S
3. Alberta & Southern Gas Company Limited	GL-3 (AO-3)	Kingsgate, B.C.	31/10/61	31/10/86	458,750	153,270	3,826,000
4. Westcoast Transmission Company Limited	GL-4 (AO-2)	Kingsgate, B.C.	10/12/61	10/12/81	152,000	51,000	1,020,000
5. Canadian-Montana Pipe Line Company	GL-5 (AO-3)	Cardston, Alta.	31/10/61	31/10/86	36,000	10,950	273,750
6. Niagara Gas Transmission Limited	GL-6 (AO-4)	Cornwall, Ont.	7/9/62	30/6/87	23,000	5,520	121,190
7. Canadian-Montana Pipe Line Company	GL-8 (AO-1)	Aden, Alta.	1/9/60	14/5/74	99,460	19,892	220,000
8. Alberta & Southern Gas Company Limited	GL-16 (AO-1)	Kingsgate, B.C.	1/11/66 1/11/67	31/10/67 31/10/89	113,125 226,250	37,415) 74,830)	1,614,000
9. Canadian-Montana Pipe Line Company	GL-17 (AO-1)	Cardston, Alta.	1/11/66 1/11/67	31/10/67 31/10/89	12,000 24,000	3,650) 7,300)	164,250
10. Trans-Canada Pipe Lines Limited	GL-18 (AO-3) ^(a)	Emerson, Man.	1/11/65 1/11/66	31/10/68 31/10/89	25,000 143,000	8,000) 52,300)	1,200,000
11. Trans-Canada Pipe Lines Limited	GL-19 (AO-1)	Philipsburg, Que.	1/11/65	31/10/89	17,700	6,500	108,000

APPENDIX IV (cont'd)

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SUBSISTING LICENCES AND ORDERS TO EXPORT NATURAL GAS AS AT 31 DECEMBER 1968

EXPORTER	LICENCE OR ORDER NUMBER	POINT OF EXPORT	TERM OF LICENCE OR ORDER		MAXIMUM EXPORT VOLUMES		
			FROM	TO	DAILY (Mcf)	ANNUAL (MMcf)	TERM (MMcf)
12. Trans-Canada Pipe Lines Limited	GL-20 (AO-4)	Emerson, Man.	21/11/68	31/10/91 (b)	87,600	32,100	765,000
13. Trans-Canada Pipe Lines Limited	GL-21 (AO-4) (c)	Emerson, Man.	5/11/68	31/10/91 (b)	677,000	247,782	6,000,000
14. Trans-Canada Pipe Lines Limited	GL-22 (AO-4)	Emerson, Man.	6/10/68	31/12/68	N/S	N/S	3,000
15. Westcoast Transmission Company Limited	PC1955-958 (AO-2)	Huntingdon, B.C.	1/1/66	2/10/77	303,450	N/S	1,192,500
16. Westcoast Transmission Company Limited	GL-23 (AO-6)	Huntingdon, B.C.	1/11/66 1/11/67 22/2/68	31/10/67 21/2/68 31/10/88	101,150 101,150 202,300	36,920) 24,579) 74,040)	1,514,720
17. Alberta & Southern Gas Company Limited	GL-24 (AO-2)	Kingsgate, B.C.	1/11/68 1/11/69 1/11/91	31/10/69 31/10/91 31/10/93	121,000 236,000 135,400	38,900) 77,900) 44,600)	1,841,900
18. Canadian-Montana Pipe Line Company	GL-25 (d) (AO-1)	Cardston, Alta.	1/11/68 1/11/69 1/11/91	31/10/69 31/10/91 31/10/93	12,000 24,000 13,800	3,650) 7,300) 4,200)	172,650
19. Patrick T. Buckley	GO-1-68	Coutts, Alta.	1/6/68	31/5/73	1 ^(e)	5	N/S

APPENDIX IV (cont'd)

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APPENDIX IV (cont'd)

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SUBSISTING LICENCES AND ORDERS TO EXPORT NATURAL GAS AS AT 31 DECEMBER 1968

- (a) The interruptible volume of 25 MMcf/d terminated on 31/10/68.
 - (b) Or sooner; in accord with expiration date of Licencee's Alberta permit TC64-6, as amended or substituted therefor.
 - (c) This licence authorizes an export at Emerson, Manitoba for re-import at Sault Ste Marie and Sarnia, Ontario to serve the Eastern Canadian Market.
 - (d) Temporary authorization was issued by FPC - 7/1/69.
 - (e) Not more than 1 MMcf in any one month.
- N/S Not specified.

* * * *

APPENDIX V

EXPORTS OF NATURAL GAS

EXPORTER AND LICENCE/ORDER	MAXIMUM		(MMcf)						CUMULATIVE TO 31/12/68	TOTAL AUTHORIZED EXPORTS	REMAINING UNDER LICENCES
	DAILY (Mcf)	ANNUAL (MMcf)	CUMULATIVE TO 31/12/63	1964	1965	1966	1967	1968			
1. Trans-Canada Pipe Lines Limited GL-1(AO-2)	223,000	74,000	196,363	71,366	73,987	73,763	74,700	73,999	564,178	1,410,000	845,822
2. Trans-Canada Pipe Lines Limited GL-2(AO-3)	96,900	20,663	-	-	-	-	-	455	455	N/S	N/A (b)
3. Alberta & Southern Gas Company Limited (c) GL-3(AO-3)	458,750	153,270	254,277	146,068	152,599	159,560	164,038 (r)	159,357	1,035,899	3,826,000	2,790,101
4. Westcoast Transmission Company Limited GL-4(AO-2)	152,000	51,000	76,876	43,507	42,627	43,576	47,600	50,437	304,623	1,020,000	715,377
5. Canadian-Montana Pipe Line Company (c) GL-5(AO-3)	36,000	10,950	21,010	10,736	10,927	10,904	10,225	12,059	75,861	273,750	197,889
6. Niagara Gas Transmission Limited GL-6(AO-4)	23,000	5,520	1,944	2,078	3,144	3,371	3,994	4,394	18,925	121,190	102,265

EXPORTS OF NATURAL GAS

EXPORTER AND LICENCE/ORDER	MAXIMUM		(MMcf)										CUMULATIVE TO 31/12/68	TOTAL AUTHORIZED EXPORTS	REMAINING (a) UNDER LICENCES
	DAILY (Mcf)	ANNUAL (MMcf)	1964	1965	1966	1967	1968	CUMULATIVE TO 31/12/63	1964	1965	1966	1967				1968
7. Patrick T. Buckley GL-7(AO-1) ^(d)	1.3 ^(e)	10	2	2	2	2	-	20	N/S	N/A					
8. Canadian-Montana Pipe Line Company GL-8(AO-1)	99,460	19,892	67,092	17,142	18,379	19,602	16,579	17,344	156,138	220,000	63,862				
9. Alberta & Southern Gas Company Limited ^(c) GL-16(AO-1)	113,125 226,250	37,415 74,830	(-) (-)	-	6,253	42,068 ^(r)	75,833	124,154)	1,614,000	1,489,846					
10. Canadian-Montana Pipe Line Company ^(c) GL-17(AO-1)	12,000 24,000	3,650 7,300	(-) (-)	-	613	3,966	7,232	11,811)	164,250	152,439					

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EXPORTS OF NATURAL GAS

APPENDIX V (cont'd)																		
EXPORTER AND LICENCE/ORDER	MAXIMUM		(MMcf)							CUMULATIVE TO 31/12/63	1964	1965	1966	1967	1968	CUMULATIVE TO 31/12/68	TOTAL AUTHORIZED EXPORTS	REMAINING UNDER LICENCES
	DAILY (Mcft)	ANNUAL (MMcf)																
11. Trans-Canada Pipe Lines Limited GL-18(AO-3) 1/11/65 to 31/10/68 ^(f) 1/11/66 to 31/10/89 ^(g)	25,000 143,000	8,000 52,300	- -	- -	3,385 -	2,525 6,493	2,089 41,108	- -	- -	- -	- -	- -	- -	- -	- -	7,999) 47,601)	1,200,000	1,144,400
12. Trans-Canada Pipe Lines Limited GL-19(AO-1)	17,700	6,500	-	-	270	613	1,452	-	-	-	-	-	-	-	-	2,335	108,000	105,665
13. Trans-Canada Pipe Lines Limited GL-20(AO-4)	87,600	32,100	-	-	-	-	1,073	-	-	-	-	-	-	-	-	1,073	765,000	763,927
14. Trans-Canada Pipe Lines Limited ^(h) GL-21(AO-4)	677,000	247,782	-	-	-	-	19,906	-	-	-	-	-	-	-	-	19,906	6,000,000	5,980,094
15. Trans-Canada Pipe Lines Limited GL-22(AO-4)	N/S	N/S	-	-	-	-	2,592	-	-	-	-	-	-	-	-	2,592	3,000	408
																		...
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EXPORTS OF NATURAL GAS

EXPORTER AND LICENCE/ORDER	MAXIMUM		(MMcf)						TOTAL AUTHORIZED EXPORTS	REMAINING UNDER LICENCES
	DAILY (Mcft)	ANNUAL (MMcf)	CUMULATIVE TO 31/12/63	1964	1965	1966	1967	1968	CUMULATIVE TO 31/12/68	
16. Westcoast Transmission Company Limited PC1955-958 (AO-2) 1955 to 31/12/65 1/1/66 to 2/10/77	304,000 303,450	100,000 N/S	519,896 -	104,340 -	103,044 -	110,520 -	118,783 -	109,152 -	724,280 338,455	N/A 1,192,500 N/A 854,045
17. Westcoast Transmission Company Limited GL-23(AO-6) 1/11/66 to 31/10/67 1/11/67 to 21/2 /68 22/2 /68 to 31/10/88	101,150 101,150 202,300	36,920 24,579 74,040	( ( (	- - -	- - -	- - -	21,645 -	39,693 -	61,338 -	1,453,382
18. Alberta & Southern Gas Company Limited GL-24(AO-2) 1/11/68 to 31/10/69 1/11/69 to 31/10/91 1/11/91 to 31/10/93	121,000 236,000 135,400	38,900 77,900 44,600	( ( (	- - -	- - -	- - -	- -	6,173 -	6,173 -	1,841,900 1,835,727
19. Canadian-Montana Pipe Line Company (1) GL-25(AO-1) 1/11/68 to 31/10/69 1/11/69 to 31/10/91 1/11/91 to 31/10/93	12,000 24,000 13,800	3,650 7,300 4,200	( ( (	- - -	- - -	- - -	- -	- -	- -	172,650 172,650

EXPORTER AND LICENCE/ORDER	MAXIMUM		EXPORTS OF NATURAL GAS (MMcf)						TOTAL AUTHORIZED EXPORTS	REMAINING UNDER LICENCES
	DAILY (Mcf)	ANNUAL (MMcf)	CUMULATIVE TO 31/12/63	1964	1965	1966	1967	1968	CUMULATIVE TO 31/12/68	
20. Patrick T. Buckley GO-1-68(j)	1(k)	5	-	-	-	-	-	2	2	N/A
Gross Exports Deduct Item 14, GL-21 Export for Re-Import			1,137,470	392,239	404,709	431,819	513,231	624,350	3,503,818	
Net Exports			-	-	-	-	-	19,906	19,906	
			1,137,470	392,239	404,709	431,819	513,231	604,444	3,483,912	

- (a) It may not be possible to export total volumes remaining under licences due to restrictions on peak day and annual volumes.
- (b) Extended to 31 December 1970 by AO-4 issued 15 January 1969. Licenced annual volume - 20,663 MMcf.
- (c) Volumes exceed licenced annual amounts due to make-up of accumulated shortfalls from previous years as authorized by licence.
- (d) Replaced by GO-1-68 on 1 June 1968.
- (e) 1.3 MMcf. per month.
- (f) Interruptible. Terminated on 31 October 1968.
- (g) Firm.
- (h) This licence authorizes an export at Emerson, Manitoba for re-import at Sault Ste. Marie and Sarnia, Ontario to serve the Eastern Canadian market.
- (i) No exports as of 31 December 1968. Temporary import authorization issued by Federal Power Commission on 7 January 1969.
- (j) Replaced GL-7 on 1 June 1968.
- (k) 1 MMcf per month.
- (r) Revised.
- N/S Not specified.
- N/A Not applicable.

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APPENDIX VINEW LICENCES AND ORDERS TO IMPORT NATURAL GAS ISSUED DURING 1968A. LICENCES - NATURAL GAS IMPORT - SECTION 82

None issued

B. ORDERS AMENDING EXISTING NATURAL GAS IMPORT LICENCES - SECTION 17

APPLICANT	ORDER NUMBER	DATE OF ISSUE	COMMENTS
1. Trans-Canada Pipe Lines Limited	A0-5 GLI-4	19/9/68	i) Amendment consolidating volumes and time periods
2. Trans-Canada Pipe Lines Limited	A0-6 GLI-4	23/10/68	i) Amendment authorizing temporary import at Sault Ste. Marie as well as at Sarnia.

C. ORDERS - NATURAL GAS IMPORT - PART VI REGULATIONS - SECTION 17

None issued

D. ORDERS AMENDING EXISTING NATURAL GAS IMPORT ORDERS - SECTION 17

None issued

* * *

APPENDIX VII

SUBSISTING LICENCES AND ORDERS TO IMPORT NATURAL GAS AS AT 31 DECEMBER 1968

IMPORTER	LICENCE OR ORDER NUMBER	POINT OF IMPORT	TERM OF LICENCE OR ORDER		MAXIMUM IMPORT VOLUMES		
			FROM	TO	DAILY (Mcf)	ANNUAL (MMcf)	TERM (MMcf)
1. Union Gas Company of Canada Limited	PC1956-1848	Ojibway, Ont.	17/12/56	31/3/70	N/S	5,500	N/S
2. Union Gas Company of Canada Limited	GLI-1	Ojibway, Ont.	1/7/65	5/11/76	55,000	15,500	170,000
3. Trans-Canada Pipe Lines Limited	GLI-2 (AO-2)	Niagara Falls, Ont.	1/11/65	1/11/66	N/S	25,500)	
			1/11/66	1/11/67	N/S	30,400)	
			1/11/67	1/11/68	N/S	15,300)	86,500
			1/11/68	1/11/69	N/S	10,200)	
			1/11/69	1/11/70	N/S	5,100)	
4. Tecumseh Gas Storage Limited	GLI-3	Ojibway, Ont.	9/2/66	8/2/69	20,000	3,000	6,000
5. Border Utilities Limited	GO-2-66	Coutts, Alta.	2/6/66	14/9/85	1,000	N/S	N/S
6. Trans-Canada Pipe Lines Limited	GLI-4 (AO-6)	(Sault Ste. Marie, Ont.) (Sarnia, Ont.)	21/9/67	1/11/69	N/S	N/S	82,303
7. Milk River Gas Company	GO-6-66	Coutts, Alta.	22/9/66	14/9/85	1,000	N/S	N/S
8. Trans-Canada Pipe Lines Limited	GL-21 (AO-4) (a)	(Sault Ste. Marie, Ont.) (Sarnia, Ont.)	5/11/68	31/10/97 ^(b)	677,000	247,782	6,000,000
9. Union Gas Company of Canada Limited	EO-1-67	Ojibway, Ont.	1/9/67	1/5/68	N/S	N/S	8,000

(a) This licence authorizes an export at Emerson, Manitoba for re-import at Sault Ste. Marie and Sarnia, Ontario to serve the Eastern Canadian market.

(b) Or sooner:- In accord with expiration date of Licence's Alberta permit TC64-6, as amended or substituted therefor.

N/S Not specified

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APPENDIX VIII

IMPORTS OF NATURAL GAS

IMPORTER AND LICENCE/ORDER	MAXIMUM		(MMcf)					CUMULATIVE TO 31/12/63				CUMULATIVE TO 31/12/68	TOTAL AUTHORIZED IMPORTS	REMAINING (a) UNDER LICENCES
	DAILY (Mcf)	ANNUAL (MMcf)	1964	1965	1966	1967	1968							
1. Coutts Gas Company Limited (b) PC1955-1742	N/S	120	91	99	17	-	-	584				791	2,340	N/A
2. Border Utilities Limited GO-2-66	1,000	N/S	-	-	27	33	32	-				92	N/S	N/A
3. Milk River Gas Company Limited GO-6-66	1,000	N/S	-	-	62	73	72	-				207	N/S	N/A
4. Union Gas Company of Canada Limited PC1956-1848	N/S	5,500	5,404	5,404	5,404	2,316	-	54,034				72,562	N/S	N/A
5. Union Gas Company of Canada Limited GLI-1	55,000	15,500	-	7,856	10,140	12,814	15,192	-				46,002	167,042 (c)	121,040

APPENDIX VIII (cont'd)

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IMPORTS OF NATURAL GAS

IMPORTER AND LICENCE/ORDER	MAXIMUM		(MMcf)						CUMULATIVE TO 31/12/63				CUMULATIVE TO 31/12/68	TOTAL AUTHORIZED IMPORTS	REMAINING (a) UNDER LICENCES
	DAILY (Mcf)	ANNUAL (MMcf)	1964	1965	1966	1967	1968								
6. Trans-Canada Pipe Lines Limited GLI-2(AO-2)	N/S	25,500						(
1/11/65 to 1/11/66	N/S	30,400						(
1/11/66 to 1/11/67	N/S	15,300						(
1/11/67 to 1/11/68	N/S	10,200		4,267	24,677	29,543	13,498	(				71,985	86,500		14,515
1/11/68 to 1/11/69	N/S	5,100						(
1/11/69 to 1/11/70															
7. Tecumseh Gas Storage Limited GLI-3	20,000	3,000	-	-	2,958	2,938	-	-	-	-	-	5,896	5,896(c)	-	-
8. Trans-Canada Pipe Lines Limited GLI-4(AO-6)	N/S	N/S	-	-	-	12,836(r)	47,873	-	-	-	-	60,709	82,303	21,594	
9. Trans-Canada Pipe Lines Limited (d) GLI-21(AO-4)	677,000	247,782	-	-	-	-	19,930	-	-	-	-	19,930	6,000,000	5,980,070	
10. Trans-Canada Pipe Lines Limited EO-2-62	N/S	N/S	2	-	-	-	-	-	-	-	-	2	5	N/A	
															... 3

APPENDIX VIII (cont'd)

APPENDIX VIII (cont'd)

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IMPORTS OF NATURAL GAS

IMPORTER AND LICENCE/ORDER	MAXIMUM		(MMcf)					CUMULATIVE TO 31/12/63	(MMcf)			CUMULATIVE TO 31/12/68	TOTAL AUTHORIZED IMPORTS	REMAINING (a) UNDER LICENCES
	DAILY (Mcft)	ANNUAL (MMcf)	1964	1965	1966	1967	1968		1964	1965	1966	1967	1968	
11. Trans-Canada Pipe Lines Limited EO-1-63	70,000	N/S	-	-	-	-	-	199	-	-	-	199	1,000	N/A
12. Union Gas Company of Canada Limited EO-2-63	N/S	N/S	-	-	-	-	-	55	-	-	-	55	N/S	N/A
13. Union Gas Company of Canada Limited EO-3-63	N/S	N/S	-	-	-	-	-	1,083	-	-	-	1,083	1,965(c)	N/A
14. Trans-Canada Pipe Lines Limited EO-1-64	140,000	N/S	2,511	-	-	-	-	-	2,511	-	-	2,511	2,500	N/A
15. Trans-Canada Pipe Lines Limited EO-2-64(AO-1)	150,000	N/S	1,636	120	-	-	-	-	1,636	120	-	1,756	3,450	N/A
16. Union Gas Company of Canada Limited EO-2-66	N/S	N/S	-	-	1,321	6,540	-	-	-	-	1,321	7,861	7,861(c)	-

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APPENDIX VIII (cont'd)

IMPORTS OF NATURAL GAS

IMPORTER AND LICENCE/ORDER	MAXIMUM		(MMcf)					CUMULATIVE TO 31/12/63	CUMULATIVE TO 31/12/68			TOTAL AUTHORIZED IMPORTS	REMAINING UNDER LICENCES (a)
	DAILY (Mcf)	ANNUAL (MMcf)	1964	1965	1966	1967	1968		1967	1968	1968		
17. Union Gas Company of Canada Limited EO-1-67	N/S	N/S	-	-	-	2,974	4,887	-	-	-	7,861	7,861 (c)	-
18. Trans-Canada Pipe Lines Limited EO-2-67	N/S	N/S	-	-	-	389	-	-	-	-	389	500	N/A
Gross Imports			55,957	17,746	44,606	70,456 (r)	101,484				299,891		
Deduct Item 9, GL-21			-	-	-	-	19,930				19,930		
Re-Import of Export			-	-	-	-	-				-		
Net Imports			55,957	17,746	44,606	70,456 (r)	81,554				279,961		

(a) It may not be possible to import total volumes remaining under licences due to restrictions on peak day and annual volumes.

(b) Licence cancelled in January 1966.

(c) Converted from "wet base" to "dry base" for purpose of comparability.

(d) This licence authorizes an export at Emerson, Manitoba for re-import at Sault Ste. Marie and Sarnia, Ontario to serve the Eastern Canadian market.

(r) Revised.

N/S Not specified.

N/A Not applicable.

* * * *

APPENDIX IX

EXPORTS OF CRUDE OIL AND EQUIVALENT TO THE UNITED STATES 1967 AND 1968 (Barrels of 35 Canadian Gallons)

	1967		1968	
	Total for Year	Daily Average	Total for Year	Daily Average
Districts I-IV				
Ashland Oil and Refining Company			12,487,044	34,118
Ashland Oil and Refining Company			831,160	2,271
Bay Refining Company	3,679,227	10,080	4,370,632	11,942
Continental Oil Company	6,482,011	17,759	9,315,907	25,453
Continental Oil Company	6,019,580	16,492	6,046,234	16,520
Great Northern Oil Company	15,101,584	41,374	17,566,414	47,996
Gulf Oil Corporation	3,838,929	10,518	5,531,409	15,113
Lakehead Pipe Line Company	185,932	509	173,661	474
Leonard Refineries Incorporated	1,092,592	2,993	1,485,060	4,058
Leonard Refineries Incorporated	1,233,510	3,379	1,306,090	3,569
Marathon Oil Company	780,259	2,138	3,598,644	9,832
Minnesota Pipe Line Company	27,883	76	49,236	135
Mobil Oil Company	7,844,703	21,492	8,824,379	24,110
Mobil Oil Company	1,022,170	2,800	2,891,747	7,901
Murphy Corporation	5,976,923	16,375	7,965,800	21,764
Northwestern Refining Company	7,133,776	19,545	10,900,331	29,782
Osecola Refining Company	86,463	237	-	-
Osecola Refining Company	554,279	1,519	802,495	2,193
The Permian Corporation	199,744	547	139,812	382
The Standard Oil Company (Ohio)	9,005,982	24,674	11,098,722	30,324
Sun Oil Company	731,348	2,004	3,530,367	9,646
Union Oil Company of California	29,819	82	38,195	104
Others	150,801	413	235,509	643
Total Districts I-IV	83,245,901	228,070	109,188,848	298,330

APPENDIX IX (cont'd)

EXPORTS OF CRUDE OIL AND EQUIVALENT TO THE UNITED STATES 1967 AND 1968
(Barrels of 35 Canadian Gallons)

District V	1967		1968	
	Total for Year	Daily Average	Total for Year	Daily Average
Mobil Oil Company	17,176,996	47,060	18,044,216	49,301
Mobil Oil Company	3,144,394	8,615	133,764	365
Phillips Petroleum Company	582,037	1,595	-	-
Shell Oil Company	23,846,687	65,333	19,376,574	52,942
Texaco Incorporated	23,418,785	64,161	22,506,065	61,492
Total District V	68,168,899	186,764	60,060,619	164,100
Total U.S.A.	151,414,800	414,834	169,249,467	462,430

* * * *

IMPORTS OF CRUDE OIL AND PETROLEUM PRODUCTS 1967 AND 1968

	<u>Barrels Daily</u>	
	<u>1967^(r)</u>	<u>1968^(a)</u>
Crude Oil	447,982	486,812
Petroleum Products	186,829	202,320
TOTAL	634,811	689,132

(r) revised.

(a) subject to revision.

Source: Company reports to the National Energy Board.

* * *

APPENDIX XI

PIPE LINE LEAKS, BREAKS AND MALFUNCTIONS

The following is a summary of leaks, breaks, malfunctions and other pipe line incidents reported to the Board during 1968 by companies under the jurisdiction of the National Energy Board:

<u>Origin of Reported Incidents</u>	<u>Number of Incidents</u>	<u>Remarks</u>
Corrosion	12	
Line Breaks	59	Twenty-eight were small leaks resulting from minor defects in the longitudinal seam of pipe, while twenty-nine occurred during testing of the pipe line, two as result of rupture in pipe.
Defective Equipment	7	These failures occurred in compressor and pumping stations.
Defective Station Piping	2	
Defects in Circumferential Field Welds	1	
Explosions	1	At Belleville, Ontario.
Other Incidents	4	One incident resulted from damage by construction equipment, two caused by rocks left under pipe, and piece of pipe cut out for upgrading of pipe line.
	<hr/>	
TOTAL	86	
	<hr/>	

APPENDIX XII

NEW LICENCES AND ORDERS TO EXPORT ELECTRIC POWER AND ENERGY ISSUED DURING 1968

A. NEW LICENCES ISSUED IN 1968 PURSUANT TO SECTION 82

APPLICANT	CLASS	KILOWATTS (THOUSANDS)	ANNUAL KILOWATTHOURS (MILLIONS)	TERM	APPLICATION HEARD	ISSUED	LICENCE NO.
1. The New Brunswick Electric Power Commission	Firm	30	225	22/2/68 to 31/12/72	13/12/67	20/2/68	EL-39
2. The New Brunswick Electric Power Commission	Interruptible	-	150	22/2/68 to 31/12/72	13/12/67	20/2/68	EL-40
3. The New Brunswick Electric Power Commission	Firm	13	76.18	22/2/68 to 31/12/72	13/12/67	20/2/68	EL-41
4. The New Brunswick Electric Power Commission	Interruptible	-	116	22/2/68 to 31/12/72	13/12/67	20/2/68	EL-42
5. The New Brunswick Electric Power Commission	Firm	20	100	22/2/68 to 31/12/72	13/12/67	20/2/68	EL-43
6. Cedars Rapids Transmission Company, Limited	Interruptible	-	500	1/11/68 to 31/12/71	17/9/68	23/10/68	EL-44
7. Cominco Limited	Interruptible	-	1,500	10/12/68 to 31/12/72	29/10/68	2/12/68	EL-45
							... 2

APPENDIX XII (cont'd)

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NEW LICENCES AND ORDERS TO EXPORT ELECTRIC POWER AND ENERGY ISSUED DURING 1968

B. NEW ORDERS ISSUED IN 1968 PURSUANT TO SECTION 6A OF THE REGULATIONS UNDER PART VI OF THE ACT*

APPLICANT	CLASS	KILOWATTS	ANNUAL KILOWATTHOURS (MILLIONS)	TERM FROM DATE OF ISSUE - MONTHS	ISSUED	ORDER NUMBER
1. The Detroit and Windsor Subway Company	Firm	300	1.00	36	18/1/68	ELO-77
2. Manitoba Hydro-Electric Board	Firm	12	0.015	36	21/8/68	ELO-78

* Under Section 6A the Board may by order authorize the exportation of not more than 4,000 kilowatts of electrical power and not more than 20,000,000 kilowatthours per year of electrical energy for a term not exceeding three years upon such terms and conditions as the Board may prescribe.

NEW LICENCES AND ORDERS TO EXPORT ELECTRIC POWER AND ENERGY ISSUED DURING 1968

C. AMENDING ORDERS ISSUED IN 1968 RELATIVE TO ELECTRIC POWER EXPORT LICENCES

APPLICANT	ASSOCIATED LICENCE	ISSUED	ORDER NUMBER
1. Cedars Rapids Transmission Company, Limited	EL-29	16/2/68	AO-2-EL-29
2. The New Brunswick Electric Power Commission	EL-24	23/2/68	AO-3-EL-24
3. The New Brunswick Electric Power Commission	EL-25	23/2/68	AO-2-EL-25
4. The New Brunswick Electric Power Commission	EL-26	23/2/68	AO-3-EL-26
5. The New Brunswick Electric Power Commission	EL-27	23/2/68	AO-2-EL-27
6. Cedars Rapids Transmission Company, Limited	EL-29	6/6/68	AO-3-EL-29
7. British Columbia Hydro and Power Authority	EL-8	3/12/68	AO-2-EL-8
8. British Columbia Hydro and Power Authority	EL-9	3/12/68	AO-4-EL-9
9. Southern Canada Power Company	EL-30	11/12/68	AO-2-EL-30
10. Southern Canada Power Company	EL-31	11/12/68	AO-2-EL-31

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APPENDIX XIII

EXPORTS OF ELECTRIC ENERGY - CALENDAR YEAR 1968

THOUSANDS OF KILOWATTHOURS

EXPORTER	LICENCE NUMBER	LICENCE AUTHORIZATION		GROSS ENERGY EXPORTED		REPORTED DOLLAR VALUE OF EXPORT	
		FIRM	INTERRUPTIBLE	FIRM	INTERRUPTIBLE	FIRM	INTERRUPTIBLE
1. Maine and New Brunswick Electrical Power Company Limited	EL-22	250,000		74,143		\$ 811,205.00	\$
	EL-23		25,000		114		114.00
2. Fraser Companies, Limited	EL-37	120,000		109,929		1,044,426.00	
	EL-38		30,000		15,718		149,321.00
3. The New Brunswick Electric Power Commission	AO-2-EL-24	2,592		831		7,362.00	
	AO-1-EL-25		18,630		12,270		68,369.00
	AO-1-EL-26		18,630		3,700		26,119.00
	AO-1-EL-27	17,010		6,041		47,686.00	
	EL-39	173,925		90,797		569,016.00	
	EL-40		128,700		20,434		122,645.00
	EL-41	65,362		7,087		59,235.00	
	EL-42	64,400		17,588		(a)	243,564.00
	EL-43	225		122		4,233.00	
SUB TOTAL NEW BRUNSWICK				306,538		2,543,163.00	
					81,854		610,132.00
4. Cedars Rapids Transmission Company Limited	AO-1-2-3-EL-29		999,600		131,310		314,724.00
	EL-44		84,000		29,162		69,902.00
5. Quebec Hydro-Electric Commission	ELO-64 to 70 & 75	408		336		5,096.00	
6. Southern Canada Power Company Limited	AO-1-EL-30		61,250		20,560		115,860.00
	AO-1-EL-31	19,850		15,698		196,228.00	
SUB TOTAL QUEBEC				16,034		201,324.00	
					181,032		500,486.00

APPENDIX XIII (cont'd)

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EXPORTS OF ELECTRIC ENERGY - CALENDAR YEAR 1968

EXPORTER	LICENCE NUMBER	THOUSANDS OF KILOWATTHOURS				REPORTED DOLLAR VALUE OF EXPORT	
		LICENCE AUTHORIZATION		GROSS ENERGY EXPORTED		FIRM	INTERRUPTIBLE
		FIRM	INTERRUPTIBLE	FIRM	INTERRUPTIBLE		
7. The Hydro-Electric Power Commission of Ontario	EL-32 EL-33 EL-34	115,000	4,500,000 105,000	949	1,867,341 23,445	1,898.00	7,811,957.00 108,162.00
8. Canadian Niagara Power Company Limited	EL-35 EL-36	307,000	205,000	307,444	63,011	1,625,120.00	282,878.00
9. The Ontario-Minnesota Pulp and Paper Company, Limited	EL-28	109,500		105,665		640,785.00	
10. The Detroit and Windsor Subway Company	ELO-77	1,000		522		-	
11. The Canadian Transit Company	ELO-71	25		24		-	
SUB TOTAL ONTARIO				414,604	1,953,797	2,267,803.00	8,202,997.00
12. Manitoba Hydro-Electric Board	ELO-78	6		1		33.00	
SUB TOTAL MANITOBA				1	-	33.00	-

APPENDIX XIII (cont'd)

... 3

EXPORTS OF ELECTRIC ENERGY - CALENDAR YEAR 1968

EXPORTER	LICENCE NUMBER	THOUSANDS OF KILOWATTHOURS				REPORTED DOLLAR VALUE OF EXPORT	
		LICENCE AUTHORIZATION		GROSS ENERGY EXPORTED		FIRM	INTERRUPTIBLE
		FIRM	INTERRUPTIBLE	FIRM	INTERRUPTIBLE		
13. British Columbia Hydro and Power Authority	AO-1-EL-8 AO-3-EL-9 ELO-76	4,500 600	1,500,000	4,092 95	594,899	(b) (b)	(b) (b)
14. Cominco Limited	AO-1-EL-20 EL-45		500,000 125,000		103,851		(b) -
15. West Kootenay Power and Light Company Limited	ELO-63	50		31		600.00	
SUB TOTAL BRITISH COLUMBIA						(b)	(b)
TOTAL CANADA				741,395	2,915,433	(b)	(b)

(a) No dollar value. Carrier Transfer Energy wheeled through Maine, back to New Brunswick.

(b) Not reported.

* * * *

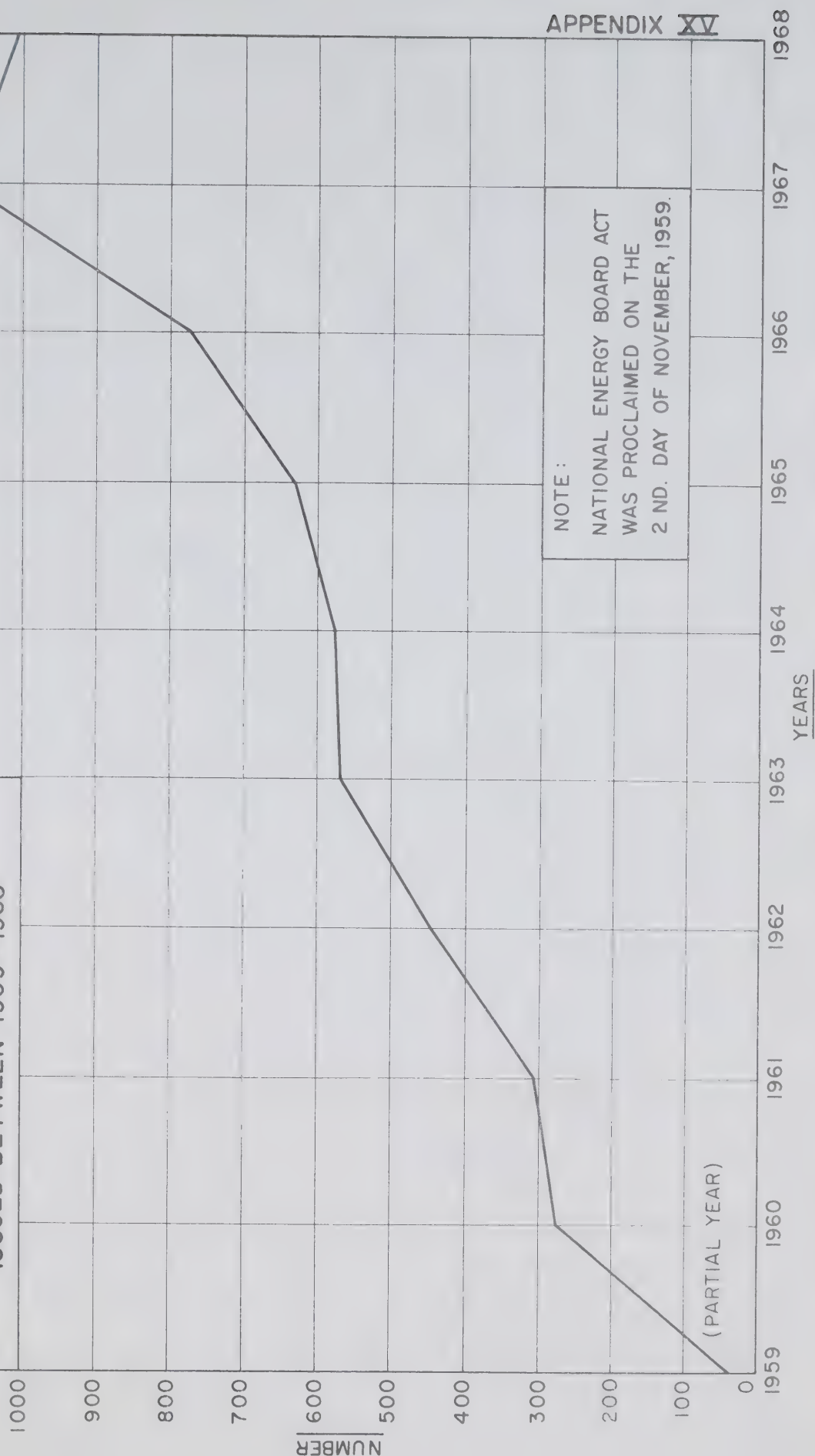
TOTAL CANADIAN ELECTRIC ENERGY SUPPLY AND TRADE WITH THE UNITED STATES - CALENDAR YEAR 1968(MILLIONS OF KILOWATTHOURS)

Electric Energy Generation in Canada	-	175,424	(preliminary)
Electric Energy Importation from U.S.A.	-	4,129	"
		<hr/>	
Total Canadian Electric Energy Supply	-	179,553	"
Electric Energy Export (Gross) to U.S.A.			
Firm	-	741	- 0.4% of Total Supply
Interruptible	-	2,915	- 1.6% of Total Supply

* * * *

APPENDIX XV

CHART SHOWING BY YEAR
TOTAL NUMBER OF BOARD CERTIFICATES,
LICENCES, ORDERS AND PERMITS
ISSUED BETWEEN 1959 - 1968





NATIONAL ENERGY BOARD

ANNUAL REPORT

FOR THE YEAR ENDED
31 DECEMBER 1969



Queen's Printer for Canada
Ottawa, 1970

Cat. No. NE1-1969

NATIONAL ENERGY BOARD

Annual Report

FOR THE YEAR ENDED

31 December 1969

NATIONAL ENERGY BOARD
OTTAWA 4, ONT.



OFFICE NATIONAL DE L'ÉNERGIE
OTTAWA 4, ONT.

FILE NO. 7-2-8
DOSSIER

31 March 1970

The Honourable J.J. Greene, P.C.,
Minister of Energy, Mines and Resources,
O t t a w a.

Dear Sir:

In accordance with the provisions of
Section 91 of the National Energy Board Act,
Statutes of Canada, 1959, Chapter 46, I have
the pleasure to submit the Annual Report of
the Board for the year ending 31 December, 1969.

Yours faithfully,

A handwritten signature in cursive script, reading "Robert D. Howland".

(Robert D. Howland)
Chairman

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NATIONAL ENERGY BOARD

R. D. Howland	-	Chairman
D. M. Fraser	-	Vice-Chairman
H. L. Briggs	-	Member
Maurice Royer	-	Member
J.G. Stabback	-	Member
Robert A. Stead	-	Secretary

B. H. Whittle	-	Assistant Secretary
T. L. de Fayer	-	Director, Economics Branch
W. A. Scotland	-	Chief Engineer, Engineering Branch
E. B. McDougall	-	Financial Adviser, Financial Branch
F. H. J. Lamar	-	Board Counsel, Law Branch
R. E. Boston	-	Director, Operations Research Branch

INTRODUCTION

This is the eleventh Annual Report of the National Energy Board presenting a resumé of the Board's activities in the discharge of its statutory responsibilities during 1969.

The Board consists of five members who are each appointed by the Governor in Council to hold office for a term of seven years with provision for reappointment or until a member reaches the age of seventy. The Governor in Council also appoints the Secretary of the Board.

As set forth by the National Energy Board Act, the Board's functions are two-fold, namely, regulatory and advisory. Although these two functions are treated separately, in actual practice the two are so losely intertwined that it is difficult to make a clear-cut distinction between them. Thus for the purposes of parliamentary appropriation, the work of the Board has been defined as a single program and the Board has been charged with the management of this program.

The Board acts as a regulatory body in the issuing, with the approval of the Governor in Council, of certificates of public convenience and necessity for the construction of interprovincial pipe lines and international power lines as well as the issuing of licences for the import and export of gas and the export of electrical power. In addition, the Board is charged with the implementation of adequate standards of

construction and operation in order to ensure the safety of any facility which it has certificated. The Board also has the authority to regulate the tolls charged by gas and oil pipe line companies under its jurisdiction to ensure that such tolls are just and reasonable.

In its advisory capacity, the Board is required to study and keep under review all matters relating to energy that come within Federal jurisdiction, to report on these matters to the Minister of Energy, Mines and Resources and to recommend to the Minister any measures within the jurisdiction of the Federal Government that the Board considers necessary or advisable to undertake in the public interest to ensure the proper use and development of energy and its sources. As part of this function, the Board may undertake special studies on any matters dealing with energy either at the request of the Minister or on its own initiative.

The Board is keenly aware of the need for technical expertise and guidance on a professional level if it is to adequately carry out its duties under the Act. Accordingly the Board has acquired a staff to provide it with expert advice in the fields of economics, finance, engineering, operations research and law, all of which is supported by an administrative service. The establishment of the Board as at 31 December, 1969 was 156, an increase of 10 over the previous year.

In the past, the Board has experienced some difficulty in recruiting suitably qualified personnel but in 1969 was more successful in meeting its staffing requirements.

During 1969 the offices of the Board were relocated to the Trebla Building, 473 Albert Street, Ottawa 4, as a result of the amalgamation of the Departments of Industry and Trade and Commerce which required the space the Board previously occupied in Place de Ville.

The Budget appropriation of the Board for the 1969-70 fiscal year totalled \$2,078,000 of which \$1,660,000 was for salaries and \$418,000 for all other expenses.

OIL AND GAS

Exploration and Development

One of the Board's functions is to review the various activities connected with the exploration for and discovery of hydrocarbon reserves. The Board studies reports of discoveries and appraises them in the context of both existing reserves and the trends in their growth. Although the main thrust of this work is naturally directed to Canada, discoveries elsewhere are noted and reported. A map showing the location of the significant oil and gas developments in Canada in 1969 appears on the following page.

It is estimated that in Canada a total of \$1,400 million was expended on development in 1969 as compared to the \$1,300 million spent in 1968. Cumulative expenditures on oil and gas exploration in Western Canada from the beginning of activity in that area to the end of 1969 are estimated to be \$14,300 million.

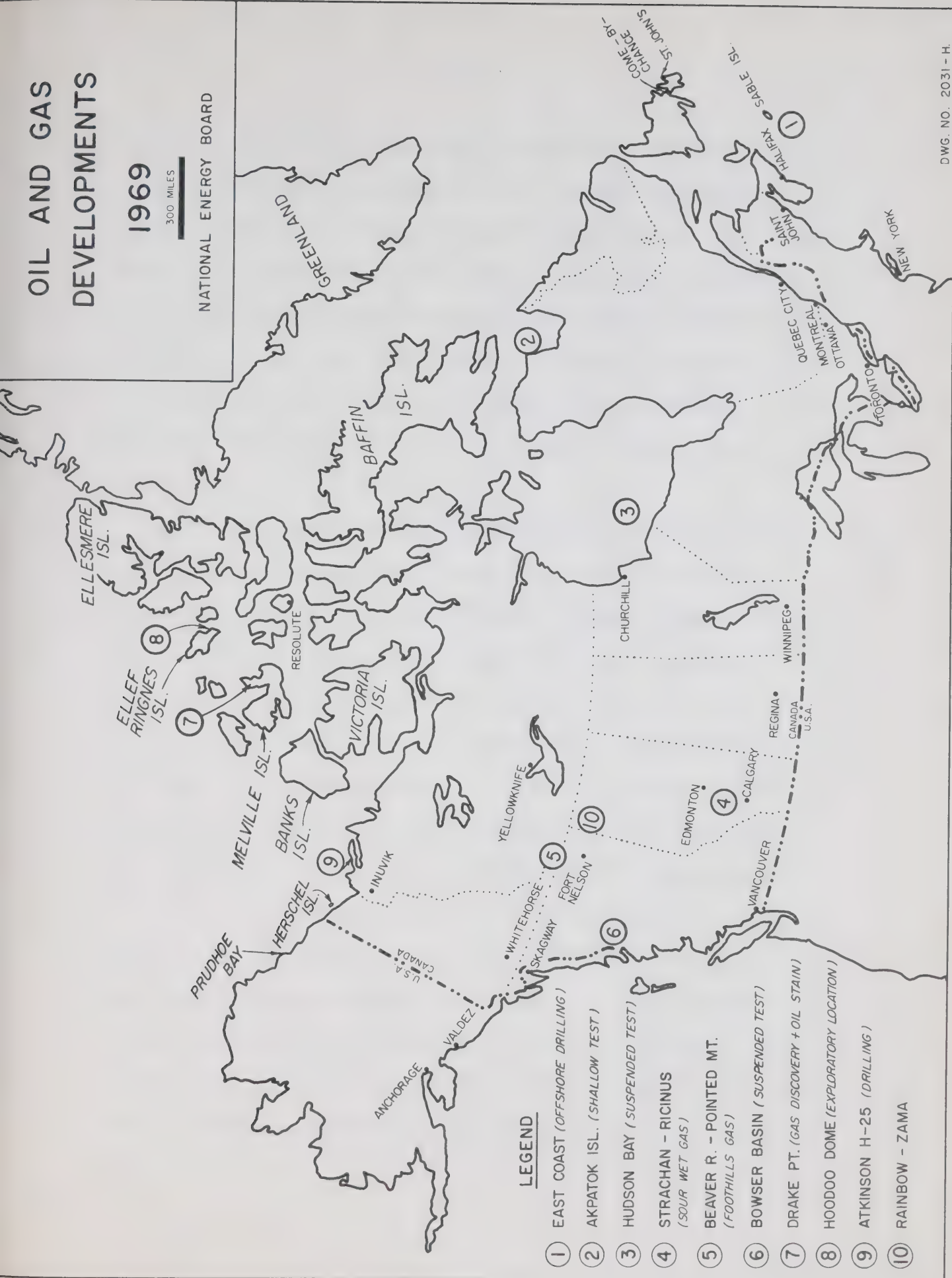
The total value of the oil and gas produced in Canada in 1969 was estimated to be \$1,450 million, a figure which represents about one quarter of the total value of mineral production for all of Canada. The total value of the oil and gas produced in 1968 was \$1,160 million.

OIL AND GAS DEVELOPMENTS

1969

300 MILES

NATIONAL ENERGY BOARD



Exploration and drilling in the Canadian Arctic were considerably expanded because of the interest generated by the discoveries at Prudhoe Bay on the North Slope of Alaska where \$900 million was paid for leases in 1969. Canadian corporations played a direct part in the activity in the area through drilling and by reason of land holdings, while Canadian experience in Arctic exploration continued to be of general help to the industry.

The most significant results in the Canadian Arctic were obtained in a Panarctic new-field wildcat drilled at Drake Point on Melville Island (item 7 on the map). This test encountered gas bearing sediments at a relatively shallow depth with an indication of oil both in the cores and in a drill-stem test. This confirmed the presence of hydrocarbons in the Arctic Islands, thus providing an impetus for drilling in other favourable sectors of the Archipelago (items 8 and 9 on the map).

The increased rate of exploration for oil and gas in the far North has required the Board to study the problems associated with development of such resources in the North and their transportation to markets. This is a new and very important aspect of the Board's work which will increase considerably in the next few years and

requires the development of new knowledge, expertise and skill on the part of the Board and its staff. The Chairman of the Board is a member of the Task Force on Northern Oil Development. The Board has been given primary responsibility for two of the four studies being undertaken by the Task Force, these being a feasibility study on transportation of oil from the North by pipe line and a study on market possibilities for Northern oil. The cost of a pipe line stretching approximately 3,600 miles from the MacKenzie Delta to Chicago would be in the neighbourhood of one and a quarter billion dollars based upon a cost per diameter inch mile usually employed by the pipe line industry. This is indicative of the magnitude of the undertakings being studied.

As part of its interest in these developments, the Board is keeping itself informed on activities which could create pollution problems in the far North. This involves factors such as low temperatures, sparseness of vegetation, the delicate balance of Arctic ecology and the effects of construction of pipe line facilities in permafrost and muskeg.

Exploration for hydrocarbons continued to reach out into other areas remote from the traditional Western Canada Sedimentary Basin. The West Coast offshore drilling campaign was suspended after having reported

shows of oil and gas in some of the tests. After a lull of nearly two years, offshore drilling on the East Coast resumed (item 1 on the map). Wells were also drilled in the deepest part of Hudson Bay (item 3 on the map), on Akpatok Island in Ungava Bay (item 2 on the map), and in the interior of British Columbia (item 6 on the map).

In Alberta, exploration and development of the Rainbow - Zama area (item 10 on the map) declined in the wake of delineation of field/pool outlines. An oil discovery some 160 miles southeast of Rainbow - Zama in a platform reef of Devonian age created the only new oil play of 1969 in the Province. Drilling for gas continued to dominate the Alberta scene with considerable activity in the area of the Foothills and immediately to the east in the deep part of the Alberta Basin. Important sour and wet gas discoveries continued to be made in the general Strachan - Ricinus area northwest of Calgary (item 4 on the map) where reef build-ups of Devonian age more than 700 feet thick were being found.

In Saskatchewan, despite intensive activity, the results of explorations of the pre-Mississippian formations that are so productive in Alberta continued to be disappointing.

British Columbia reported no significant discoveries during the year, either in oil or gas. Exploratory and development drilling of the Beaver River - Pointed Mountain trend (item 5 on the map) continued in the expectation of a pipe line connection to these remote but significant Foothills gas reservoirs.

Oil - Production, Transportation and Markets

The Canadian oil industry had another excellent year. Production of crude oil and natural gas liquids in 1969 averaged a record 1,306,000 barrels daily, an increase of nearly 109,000 barrels daily over the 1968 rate.

Growth in demand for Canadian oil during 1969 was so rapid that by the year-end, facilities handling the crude oil between the fields and the Edmonton trunk pipe line terminals were severely strained, this being the effective limiting factor on sales. In conjunction with the provincial authorities and the oil industry, the Board kept the developing situation under careful scrutiny with a view to safeguarding supply for domestic users. Canadian refineries experienced no shortage of oil.

Exports accounted for about 85 per cent of total demand growth and increased during the year, both in United States west coast markets and east of the Rockies. The most important development affecting this demand was an unexpected and substantial rise in the price of United

States crude oil in the first months of 1969. The price of Canadian crude oil was substantially unchanged in 1969 so its competitiveness in refinery markets across the Northern States was significantly enhanced.

In its role as Government's instrument for the implementation of oil policy, the Board continued to exercise responsibility for administration of arrangements relating to certain oil exports which were entered into with the United States by an exchange of Notes in September 1967. Most vigorous efforts were employed by the Board within the scope of these arrangements to restrain exports of Canadian feedstock to the area east of the Rockies to the levels envisaged. Although the Board received the co-operation of the great majority of the companies involved, a changing industry environment, in particular the increase in United States crude oil prices referred to above, made it impracticable to limit exports to the target levels.

The refinery destination of Canadian exports of crude oil and equivalent in 1968 and 1969 is shown in Appendix IX.

In Ontario, the largest domestic market for Canadian oil, the competitive pressure of imported supply was accentuated in 1969. That part of the Province to the west of the Ottawa Valley (Region 3) is designated under

established national oil policy as an area to be served substantially with products derived from Canadian crude. However, an increased volume of foreign-origin motor gasoline, which is the critical product in this context, was moved into this area. The Board once more sought the assistance of industry in minimizing this movement. In this, it greatly valued the co-operation of those companies which continued to follow oil policy guidelines and abstained from moving foreign-origin gasoline and other light products into the area, despite increased competitive pressures for them to do so.

The movement of foreign oil by major product groups into Ontario west of the Ottawa Valley is shown in Appendix X.

On the basis of information provided by companies concerning their refining programmes, the Board carried out two studies in 1969 of the outlook for refining capacity and for the supply of petroleum products, one with regard to Ontario and the other with regard to the situation in Quebec and the Atlantic Provinces.

The analysis of the Ontario situation showed that refinery capacity could shortly be adequate to supply the total anticipated demand of motor gasoline and middle distillates in the area west of the Ottawa Valley.

There is no assurance that this potential supply would be fully taken up and demand for Canadian crude thereby maximized. Indeed there is a danger that the movement of foreign-origin product moving into Ontario west of the Ottawa Valley will be accentuated, with the risk of serious reduction in the incentive for even routine refinery expansion. Such circumstances threaten both the prospects for growth in demand for Canadian oil in Ontario and the voluntary basis of the policy upon which that growth depends.

The Board's examination of the refining and supply situation east of Ontario, but including the Ottawa Valley region, was extended to cover a number of related matters, including the terms under which the refiners purchase foreign crude oils and the existing programmes as to their sources of supply. A report on the findings from these investigations was being completed at the year-end.

Imports of crude oil and refined products to the Atlantic Provinces, Quebec and the Ottawa Valley area of Ontario again increased in 1969, but by much less than the growth in national production of indigenous oil. As a result, there was a significant improvement in Canada's net self-sufficiency in oil with domestic production

amounting to nearly 95 per cent of domestic demand. The cost of imported oil in 1969 fell somewhat as compared with the previous year. Total Canadian imports of crude oil and petroleum products for 1969 are shown in Appendix XI.

Gas - Production, Transportation and Markets

Since its inception, the Board has continuously analyzed gas reserves in Canada, appraising them in their geological context in order not only to estimate the existing reserves but also to forecast the probable undiscovered quantities related to these known reservoirs. Using geological and other considerations, the study of gas prone areas assists in the prediction of the amounts of gas that may reasonably be expected to be discovered. In turn, both current and future surplus may be estimated by forecasting Canadian requirements and comparing them with established and ultimate reserves.

Briefs, and other submissions concerning reserves, made from time to time by other governmental agencies and industry, are analyzed by the Board as is the information supplied by transmission companies. This information is essential for carrying out the above tasks.

During 1969, Dome Petroleum Limited and Pan American Canada Oil Company, Ltd., appeared jointly before the Board in an application to export and re-import propane

using the facilities of the Interprovincial Pipe Line system, taking the product from that system at Sarnia. The total amount involved in the application is 88,500,000 barrels over a twenty-five year period. The Board approved the application shortly after the end of the year covered by this report and licences were issued accordingly to both companies.

In addition, amendments of a minor nature were made to four licences, details of which are to be found in Appendix III. Appendices IV to VIII provide further information on gas licences as well as the amounts of gas exported and imported yearly.

During the year, the Board received applications from Alberta and Southern Gas Co. Ltd., Canadian-Montana Pipe Line Company, and Consolidated Natural Gas Limited, for licences to export gas, and applications from Alberta Natural Gas Company and Consolidated Pipe Lines Company for certificates of public convenience and necessity, and applications from Trans-Canada Pipe Lines Limited and Westcoast Transmission Company Limited for both licences and certificates of public convenience and necessity. These applications involve a total capital investment of approximately \$258 million for pipe line facilities and a total export volume, valued at about \$3,250,000,000 during the terms of the proposed licences, consisting of approximately 9.5 trillion cubic feet.

These applications are particularly significant. The Board decided that it must, in view of the amount of gas proposed to be exported, re-examine the principles on which it has previously considered such matters as Canadian gas requirements; indicated gas reserves, deliverability and projected trends in rates of discovery; and the surplus remaining after making due allowance for the reasonably foreseeable requirements for gas for use in Canada. The Board has also undertaken a reassessment of the methods and assumptions pertinent to determining whether the export price is just and reasonable in relation to the public interest. The Board invited evidence and advice from the Applicants and from all other interested parties on these and related questions, including that of determining the basis on which quantities of gas should be allocated among exporters if the quantity of gas surplus to foreseeable Canadian requirements is insufficient to meet the sum of the quantities proposed to be exported. The effect of rising export prices on the cost of gas to Canadian customers is another matter which must engage the attention of the Board. Following public notice of the applications and of the policy questions to be considered in relation to them, a joint hearing commenced in Ottawa on 25 November, 1969 and was still in progress at the year's end.

During the course of the year, two informal meetings were held by Board members with members of the Federal Power Commission of the United States. The discussions were of a general nature and concerned recent trends in North American supply and demand of natural gas and electricity and the areas of common interest of the two agencies in developing programmes and procedures appropriate to changing conditions. Both agencies are agreed that further meetings of a similar nature should be held from time to time and that liaison between their respective officers should be further developed.

Pipe Lines

In the interest of public safety, the Board maintains a system of surveillance over the design, operation and maintenance of pipe lines under its jurisdiction. This extends to ensuring that the manufacture, construction and testing of these facilities are conducted in accordance with accepted standards and Board requirements. During 1969 the Board made extensive use of its existing computer programs and carried out six major studies to determine the feasibility and optimal designs of pipe line facilities.

The Board investigates all failures, malfunctions and similar incidents involving pipe lines under its jurisdiction, analyzes their origin, and seeks to determine and isolate their causes to prevent their recurrence. A summary

list of incidents which occurred during 1969 is to be found at Appendix XII.

In 1969 an engineer from the Board's staff was present during the reconstruction and testing of a 24-inch diameter gas pipe line in the Northeastern part of British Columbia. This pipe line, approximately 48 miles in length, had to be reconstructed since a total of 55 breaks were discovered during the course of testing the original line.

The Board conducted further investigations in regard to the safety aspects of a petroleum products pipe line in the Yukon Territory. Resulting from the concern expressed by the Board and other Government agencies, several meetings were held with the operators of the pipe line and the Board is aware that significant improvements in the condition of the line have been achieved.

Following an extensive up-grading and sand blasting program conducted by Trans-Canada Pipe Lines Limited both in Western and Central Canada, the Board, after detailed study of the results and other relevant data, approved the operation of these pipe line facilities at higher maximum operating pressures than those previously authorized.

In 1969 the Board issued a total of 818 certificates, licences, permits and orders. These included 466 orders relating to the crossing of and by pipe lines with regard to other utilities, highways and railways, 15 orders approving plans, profiles and books of reference, 53 orders

granting leave to open for oil and gas pipe line facilities, as well as 50 orders authorizing the operation of existing pipe line facilities at operating pressures higher than those previously authorized. Generally speaking, these orders relate to the protection of the public and pipe line facilities and to improved safety in pipe line operations. Although the total number of orders issued is less than the number issued in the previous year, the complexity and variety of the applications handled by the Board increased. The annual totals of certificates, licences, orders and permits which the Board has issued since its inception are shown in Appendix XVI.

The Board carried out numerous field inspections in connection with the pressure testing of new oil and gas pipe lines, as well as oil pump stations and gas compressor stations. Similar inspections were made in respect of the retesting and internal sand blasting of existing gas pipe lines and existing compressor station facilities.

Safety regulations are at present being developed for both oil pipe lines and gas pipe lines. These regulations are intended to supplement the existing CSA Standards Z183-1967 and Z184-1968.

Under the National Transportation Act, the Board, in conjunction with the Canadian Transport Commission, is required to hear applications for authority to construct

commodity pipe lines. The Board and the Commission are preparing rules and procedures to be followed for such joint hearings.

Significant pipe line construction during 1969 included facilities installed by Interprovincial Pipe Line Company and Trans-Canada Pipe Lines Limited. Interprovincial Pipe Line Company has completed construction of a third line, this being a 34-inch diameter pipe line between Edmonton, Alberta and Cromer, Manitoba, which is connected at the latter point with a similar line installed by Lakehead Pipe Line Company Inc. which runs as far as Superior, Wisconsin. In addition, Lakehead constructed a 30-inch diameter pipe line between Griffith, Indiana and Sarnia, Ontario, thus completing a southern loop between Superior and Sarnia, via Chicago. These extensions and modifications were required to meet the anticipated demand in 1970 for crude oil from Western Canada in the markets served by the Interprovincial and Lakehead systems.

Trans-Canada Pipe Lines Limited continued to construct additional stages of its third line, a 36-inch diameter pipe line, between Empress, Alberta and Winnipeg, Manitoba. It also constructed a further loop along its Emerson lateral to the international boundary. These additions were required specifically to meet the increased demands of Canadian customers in Eastern Canada via the

"Great Lakes" pipe line and incidentally to allow increased exports to United States markets.

The capital expenditure relating to 1969 construction of pipe lines under the Board's jurisdiction is summarized in Appendices I and II.

In the light of complaints received from a number of landowners along the right-of-way of a pipe line constructed during 1967, the Board carried out a review of the problems arising out of the restoration of agricultural lands crossed by pipe lines. The Board arranged a meeting between representatives of the pipe line industry and several agricultural associations which resulted in the development of certain measures aimed at improving relations between the landowners and the pipe line industry.

In co-operation with the Department of Energy, Mines and Resources and the Dominion Bureau of Statistics, the Board is preparing revised maps showing the principal oil pipe lines and gas pipe lines in Canada.

ELECTRIC POWER

During 1969 the Board held public hearings of applications by British Columbia Hydro and Power Authority, The New Brunswick Electric Power Commission and The Manitoba Hydro-Electric Board for licences to export electric power and energy and, in the case of the latter two applicants, for certificates of public convenience and necessity with respect to proposed new international power lines. High-capacity north-south transmission interconnections with large United States power utilities already exist in the case of British Columbia Hydro and are proposed by the other two applicants. All three export applications reflect the increasing trend towards interconnected operation of electric utilities in North America as well as the necessarily flexible contractual relationships being developed for the effective interchange of power between utilities.

In each case, in addition to classes of export for which licences have been granted in the past, the applicants sought to obtain authorization to export blocks of energy with assured delivery commitments for periods of six to eight months at prices to be determined subsequent to issuance of the licences.

The Board's decision on all these applications was pending at the end of the year.

In the year past, the Board took part in several important joint power system planning studies which entailed the participation of the federal and provincial governments as well as the participation of provincial power utilities and their consultants. Amongst these were studies the Board undertook in co-operation with the Atlantic Tidal Power Programming Board and studies on the Lower Churchill Falls hydro power development. The Board also co-operated with representatives from the Department of Energy, Mines and Resources on technical and economic feasibility studies related to the proposed New Brunswick-Quebec high voltage interconnection.

Appendices XIII to XV provide details on Canadian exports of electricity during 1969.

FINANCIAL MATTERS

The Board's concern with the financial aspects of the companies coming within its jurisdiction covered a wide range of activities in 1969. In addition to the surveillance of the financial affairs, accounting practices, rates, tolls and tariffs of pipe line companies under its jurisdiction, the Board engaged in many projects of a highly specialized nature.

Among the major factors contributing to the expanded activities of the Board was the preparatory work involved in the implementation in late 1969 of Part IV of the National Energy Board Act governing the regulation of the traffic, tolls and tariffs of pipe line companies which were operating on the date the Act came into force on 2 November 1959 and which are subject to the Board's jurisdiction. There will no longer be any distinction with respect to traffic, tolls and tariffs between those companies which commenced the operation of pipe lines under the Board's jurisdiction since 1959, and hence have been subject to Part IV, and those whose operations predated the coming into force of the National Energy Board Act, which were not hitherto subject to Part IV. In addition the Board carried out, on a continuing basis, special analysis of the financial implications of current applications for large-scale exports of natural gas and developing trends in energy supply and demand.

The Board continued to review and analyze the prescribed quarterly and annual financial reports of jurisdictional companies. Where appropriate, special financial information was requested from companies covering such matters as cash flow and budget forecasts, construction cost reports, financing arrangements and depreciation policies. In several specific cases, the Board considered and approved the accounting treatment of specific transactions in accordance with the provisions of its Uniform Accounting Regulations.

As is its policy, the Board continued to carry out field examinations of the accounts of pipe line companies. This year the accounts of five major companies were examined. These examinations enabled the Board to keep informed on significant cost information with respect to operating and plant accounts and ensured conformity with the Uniform Accounting Regulations. It is anticipated that information gained from field examinations will become increasingly important to the Board, particularly with regard to the regulation of traffic, tolls and tariffs.

As part of the surveillance procedure, the Board reviews and analyzes agreements and contracts covering the sale, purchase and transportation of gas by pipe line companies under its jurisdiction. Statistical information concerning volumes of throughput, revenues and expenses of pipe line companies is accumulated on a regular basis as part of the rate regulation process.

Approval by the Governor in Council of the Board's Uniform Accounting Regulations for Gas Pipe Line Companies was received in 1969. Amendments to the Board's Uniform Accounting Regulations for Oil Pipe Line Companies were also approved. It is anticipated that amendments to accounting regulations will be made from time to time as dictated by experience and changing conditions in the pipe line industry.

During the year, close liaison was maintained with members of the pipe line industry, professional accounting bodies, other government agencies and various sectors of the national and international financial community to assist in the assessment of the availability and cost of capital to the pipe line industry and the accounting treatment of such costs. The Board also kept informed on the activity of other regulatory bodies in other financial and accounting matters.

During 1969 the Board, in co-operation with other government departments and agencies, participated in various programs and studies concerning the financial aspects of energy in Canada. These included revisions to the annual and quarterly financial reports of pipe line companies which are filed with the Dominion Bureau of Statistics, and co-operation with the Canadian Transport Commission concerning proposed accounting regulations for commodity pipe lines.

During 1968, a firm of chartered accountants experienced in regulatory work was retained by the Board to conduct a rate study of a small gas pipe line company. This assignment was completed in 1969 and the results thereof are currently under study and consideration by the Board. The firm has been further retained to conduct a rate study, in conjunction with the Board's staff, of a major gas pipe line company.

In 1969 the Board received an application for rate base determination from another major gas pipe line company under its jurisdiction. The Board commenced the process of engaging a firm of chartered accountants together with consultants experienced in rate regulatory principles to work in conjunction with Board staff on this matter.

SUPPORTING ENERGY STUDIES

A long term energy forecast was published in 1969. The results of this forecast, prepared by the Board's staff, were first presented publicly in abbreviated form at the annual meeting of the Canadian Gas Association in June, and the study was published for sale by the Queen's Printer in November under the title "Energy Supply and Demand in Canada and Export Demand for Canadian Energy, 1966 to 1990". The study deals with the sources of supply for serving both the indigenous and the export demand for Canadian energy. It aims to identify energy trends likely to develop during the period covered and to assess the probable impact these trends would have on Canada.

The process of aggregation of energy statistics in various forms from different sources was examined in a staff paper entitled "Energy Supply and Demand".

A survey of the United States' natural gas market was completed by the Board to provide background for a review of the developing situation of the market for natural gas in the United States and its interaction with Canadian supply.

During 1969, operations research work continued on a variety of mathematical models. As a result of this work, 11 major energy studies were concluded and a total

of five significant publications prepared, three of which were presented at professional conferences. These included the following:

- a statistical decision model relating to the exploration for oil and gas,
- a first version of a continental oil investment and allocation model. A second version of the continental oil allocation portion is currently being developed along different lines,
- several models dealing with quantitative engineering and economic evaluation of oil and gas transportation by pipe line,
- a model for the evaluation of proposals for the expansion of pipe line systems,
- a simulation program for gas pipe lines.

Technical developments in the electric power field and power development plants in Canada and relevant areas, were kept under review. The Board continued to examine data on fuel costs and electricity production at thermal stations, as well as relevant technical and economic aspects of electric power generation at fossil fuel plants in Canada. A computer program has been developed to aid in determining the costs of alternative generation expansion programs through the simulation of the year-by-year operation of the electric power

plants in a system and the operation of a specified series of plants that could be added to that system. A "risk of loss of load" program, which assists in the computation of electric power system reserve requirements, was updated and made available to two Canadian utilities.

To further the development of energy statistics, the Board continued to co-operate with the Dominion Bureau of Statistics and other Federal Departments and agencies. In addition, liaison was maintained with the appropriate representatives of Provincial Government bodies and of the energy industries. Board staff was active on a committee on energy studies and co-operated with the Housing and Families Sub-Committee of the Dominion Bureau of Statistics regarding the preparations for the 1971 National Census.

As in the previous year, the Board has assisted the Department of Transport, Marine Operations Planning Group, to apply certain operations research techniques to the examination of supply and rescue operations.

At the request of the Department of External Affairs, the Board continued to serve as the focal point for Canada's contribution to the energy activities of the Organization for Economic Co-operation and Development. In accordance with earlier plans, an historical review of Canada's energy policies has been tabled and will be the subject of consideration by the Energy Committee. Contributions have also been

made on various other topics including environmental pollution. With regard to the Organization's interests in environmental pollution, the Board has continued to liaise with the Department of National Health and Welfare and the Department of Energy, Mines and Resources and other interested parties.

As in previous years, the Board represented Canada in connection with NATO matters relative to energy policy.

In the fall, York University initiated a post-graduate course in energy economics. As mentioned in the previous Annual Report, this new program was developed by the University in co-operation with the Board, the Public Service Commission and the Department of Energy, Mines and Resources and is intended to provide specialized energy-oriented economists for government and industry.

The Board has played a major role in working with the Emergency Supply Planning Branch of the Department of Supply and Services in developing plans and programs respecting energy for implementation in the event of a national emergency in Canada.

APPENDIX I

NEW CERTIFICATES OF PUBLIC CONVENIENCE AND NECESSITY PURSUANT TO SECTION 44 ISSUED DURING 1969

NATURAL GAS PIPE LINES

APPLICANT	FACILITIES	ESTIMATED COST	HEARD	ISSUED	CERTIFICATE NO.
1. Westcoast Transmission Company Limited	The replacement of approximately 48 miles of pipe originally approved under Certificate of Public Convenience and Necessity No. GC-31.	\$ 7,000,000.00	N/A	9 January, 1969	MO-1-69
2. Trans-Canada Pipe Lines Limited	i) Approximately 213 miles of 36-inch diameter pipe line in the Provinces of Alberta, Saskatchewan and Manitoba. ii) Additional compressor facilities and other works connected therewith at three locations in the Province of Saskatchewan. iii) Improvements to its existing pipe line system by means of hydrostatic testing and/or sandblasting in the Provinces of Saskatchewan, Manitoba and Ontario.	\$52,430,500.00	commencing 25 March, 1969	13 May, 1969	GC-35

N/A Not applicable

NEW CERTIFICATES OF PUBLIC CONVENIENCE AND NECESSITY PURSUANT TO SECTION 44 ISSUED DURING 1969

NATURAL GAS PIPE LINES (cont'd)

APPLICANT	FACILITIES	ESTIMATED COST	HEARD	ISSUED	CERTIFICATE NO.
3. Westcoast Transmission Company Limited	Approximately 33 miles of 12 4 -inch diameter lines of pipe, together with all appurtenances and works connected therewith, referred to as PeeJay-Willigan pipe line, in the Province of British Columbia.	\$ 2,288,600.00	17 June, 1969	27 August, 1969	GC-36

OIL PIPE LINES

1. Interprovincial Pipe Line Company	i) Approximately 170 miles of 34-inch OD pipe line in the Provinces of Alberta and Saskatchewan. ii) Approximately 7 miles of 30-inch OD pipe line in the Province of Ontario. iii) Additional pumping and storage facilities, certain equipment rearrangements and modifications, and a replacement pump, at 11 existing pump stations in the Provinces of Alberta, Saskatchewan and Ontario.	\$25,492,000.00	26 November, 1968	4 March, 1969	OC-22
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NEW CERTIFICATES OF PUBLIC CONVENIENCE AND NECESSITY PURSUANT TO SECTION 44 ISSUED DURING 1969

INTERNATIONAL POWER LINES

APPLICANT	FACILITIES	ESTIMATED COST	HEARD	ISSUED	CERTIFICATE NO.
1. Canadian Niagara Power Company Limited	Amending order to Certificate EC-22 to effect certain repairs to the International Power Lines consisting of removing ten of the existing twelve conductors comprising Lines 5, 6, 7 and 8, and the installation of four wires of equal size as existing conductors from Niagara-Mohawk's Terminal House "B" at Buffalo, in the State of New York, in the United States of America, across the Niagara River to the Queen Street Tower of the Company.	N/A	N/A	8 May, 1969	AO-1-EC-22

N/A Not applicable

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APPENDIX II
EXEMPTION ORDERS PURSUANT TO SECTION 49
ISSUED DURING 1969
CLASS "B" CONSTRUCTION

(This is construction which, at the discretion of the Board, may be the subject of a specific exemption order pursuant to Section 49).

NATURAL GAS PIPE LINES

- (1) Trans-Canada Pipe Lines Limited, new permanent meter station to be known as 'Sarnia Meter Station' and other works connected therewith, in the Province of Ontario, estimated cost \$95,700.00, Order No XG-1-69, dated 17 July, 1969.
- (2) Trans-Canada Pipe Lines Limited, new meter station to be known as 'Valleyfield Meter Station' and other works connected therewith, in the Province of Quebec, estimated cost \$48,300.00, Order No. XG-2-69, dated 17 July, 1969.
- (3) Trans-Canada Pipe Lines Limited, new meter station to be known as 'Summerstown Meter Station' and other works connected therewith, in the Province of Ontario, estimated cost \$29,900.00, Order No. XG-3-69, dated 28 August, 1969.
- (4) Trans-Canada Pipe Lines Limited, temporary meter station to be known as 'Welwyn Meter Station' and other works connected therewith, in the Province of Saskatchewan, estimated cost \$17,900.00, Order No. XG-4-69, dated 28 August, 1969.
- (5) Trans-Canada Pipe Lines Limited, new meter station to be known as 'Calstock Meter Station' and other works connected therewith, in the Province of Ontario, estimated cost \$24,400.00, Order No. XG-5-69, dated 11 September, 1969.
- (6) Trans-Canada Pipe Lines Limited, new meter station to be known as 'Barriefield Meter Station' and other works connected therewith, in the Province of Ontario, estimated cost \$32,300.00, Order No. XG-6-69, dated 18 September, 1969.

APPENDIX II (cont'd)
EXEMPTION ORDERS PURSUANT TO SECTION 49
ISSUED DURING 1969
CLASS "B" CONSTRUCTION

(This is construction which, at the discretion of the Board, may be the subject of a specific exemption order pursuant to Section 49).

OIL PIPE LINES

- (1) Northwest Transmission Company Limited, approximately 1 mile of 4½-inch OD pipe line in the Provinces of Alberta and British Columbia, estimated cost \$27,600.00, Order No. XO-1-69, dated 13 March, 1969.
- (2) Trans-Northern Pipe Line Company, approximately 10 miles of 10.75-inch OD pipe line, including Terminal facilities in the Province of Quebec (from Laval to Dorval Airport), estimated cost \$1,700,000.00, Order No. XO-2-69, dated 29 May, 1969.
- (3) Interprovincial Pipe Line Company, a 196,000 barrel tank, a 60 horsepower booster pump, associated piping, and other works connected therewith, to be added to its existing 'Westover Pump Station', in the Province of Ontario, estimated cost \$300,000.00, Order No. XO-3-69, dated 11 September, 1969.
- (4) Trans Mountain Oil Pipe Line Company, a new pump station to be known as 'Blue River Pump Station', and works connected therewith, to be added to the existing pipe line system in the Province of British Columbia, estimated cost \$280,000.00, Order No. XO-4-69 dated 6 November, 1969.
- (5) Trans Mountain Oil Pipe Line Company, an additional pumping unit and other works connected therewith, added to the existing 'Kamloops Pump Station', in the Province of British Columbia, estimated cost \$180,000.00, Order No. XO-5-69 dated 6 November, 1969.

APPENDIX II (cont'd)
EXEMPTION ORDERS PURSUANT TO SECTION 49
ISSUED DURING 1969
CLASS "C" CONSTRUCTION

(This is miscellaneous construction of a routine character which, at the discretion of the Board, may be the subject of an annual blanket exemption order pursuant to Section 49).

NATURAL GAS PIPE LINES

- (1) Alberta Natural Gas Company, for certain miscellaneous facilities to be added to its pipe line system in the Provinces of Alberta and British Columbia, estimated cost \$238,980.00, Order No. XGM-1-69, dated 17 April, 1969.
- (2) Petroleum Transmission Company, for certain miscellaneous facilities to be added to its pipe line system in the Provinces of Saskatchewan and Manitoba, estimated cost \$24,200.00, Order No. XGM-2-69, dated 24 April, 1969.
- (3) Trans-Canada Pipe Lines Limited, for certain miscellaneous facilities to be added to its pipe line system in the Provinces of Alberta, Saskatchewan, Manitoba, Ontario and Quebec, estimated cost \$17,069,548.00, Order No. XGM-3-69, dated 22 May, 1969.
- (4) Westcoast Transmission Company Limited, for certain miscellaneous facilities to be added to its pipe line system in the Province of British Columbia, estimated cost \$3,836,391.00, Order No. XGM-4-69, dated 17 July, 1969.

APPENDIX II (cont'd)
EXEMPTION ORDERS PURSUANT TO SECTION 49
ISSUED DURING 1969
CLASS "C" CONSTRUCTION

(This is miscellaneous construction of a routine character which, at the discretion of the Board, may be the subject of an annual blanket exemption order pursuant to Section 49).

OIL PIPE LINES

- (1) Trans Mountain Oil Pipe Line Company, for certain miscellaneous facilities to be added to its pipe line system in the Provinces of Alberta and British Columbia, estimated cost, \$338,285.00, Order No. XOM-1-69, dated 13 March, 1969.
- (2) Westspur Pipe Line Company, for certain miscellaneous facilities to be added to its pipe line system in the Provinces of Saskatchewan and Manitoba, estimated cost \$380,500.00, Order No. XOM-2-69, dated 10 April, 1969.
- (3) Montreal Pipe Line Company Limited, for certain miscellaneous facilities to be added to its pipe line system in the Province of Quebec, estimated cost \$846,600.00, Order No. XOM-3-69, dated 10 April, 1969.
- (4) Interprovincial Pipe Line Company, for certain miscellaneous facilities to be added to its pipe line system in the Provinces of Alberta, Saskatchewan, Manitoba and Ontario, estimated cost \$308,600.00, Order No. XOM-4-69, dated 10 April, 1969.
- (5) Trans-Northern Pipe Line Company, for certain miscellaneous facilities to be added to its pipe line system in the Provinces of Ontario and Quebec, estimated cost \$160,000.00, Order No. XOM-5-69, dated 1 May, 1969.

APPENDIX III

NEW LICENCES AND ORDERS TO EXPORT NATURAL GAS ISSUED DURING 1969

A. LICENCES - NATURAL GAS EXPORT - SECTION 82

None issued

B. ORDERS AMENDING EXISTING NATURAL GAS EXPORT LICENCES - SECTION 17

APPLICANT	ORDER NUMBER	DATE OF ISSUE	COMMENTS
1. Trans-Canada Pipe Lines Limited	AO-4 GL-2	15/1/69	Amendment extending expiration date from 31/12/68 to 31/12/70
2. Trans-Canada Pipe Lines Limited	AO-5 GL-2	13/5/69	Amendment authorizing temporary increase in daily and annual volumes. For the period 1/11/69 to 31/10/70
3. Westcoast Transmission Company Limited	AO-3 GL-4	17/9/69	Amendment providing flexibility in daily and annual volume limitations
4. Canadian-Montana Pipe Line Company	AO-2 GL-25	15/1/69	Amendment extending the date for filing FPC authorizations with NEB from 31/12/68 to 30/6/69

C. ORDERS - NATURAL GAS EXPORT - PART VI REGULATIONS - SECTION 6B AND 16A

None issued

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APPENDIX IV

SUBSISTING LICENCES AND ORDERS TO EXPORT NATURAL GAS AS AT 31 DECEMBER 1969

EXPORTER	LICENCE OR ORDER NUMBER	POINT OF EXPORT	TERM OF LICENCE OR ORDER		MAXIMUM EXPORT VOLUMES		
			FROM	TO	DAILY (Mcf)	ANNUAL (MMcf)	TERM (MMcf)
1. Trans-Canada Pipe Lines Limited	GL-1 (AO-2)	Emerson, Man.	11/ 4/60	14/ 5/81	223,000	74,000	1,410,000
2. Trans-Canada Pipe Lines Limited	GL-2 (AO-5)	Niagara Falls, Ont.	11/ 4/60	31/12/70	96,900 ^(a)	20,663 ^(a)	N/s
3. Alberta & Southern Gas Company Limited	GL-3 (AO-3)	Kingsgate, B.C.	31/10/61	31/10/86	458,750	153,270	3,826,000
4. Westcoast Transmission Company Limited	GL-4 (AO-3)	Kingsgate, B.C.	10/12/61	10/12/81	152,000	51,000	1,020,000
5. Canadian-Montana Pipe Line Company	GL-5 (AO-3)	Cardston, Alta.	31/10/61	31/10/86	36,000	10,950	273,750
6. Niagara Gas Transmission Limited	GL-6 (AO-4)	Cornwall, Ont.	7/ 9/62	30/ 6/87	23,000	5,520	121,190
7. Canadian-Montana Pipe Line Company	GL-8 (AO-1)	Aden, Alta.	1/ 9/60	14/ 5/74	99,460	19,892	220,000
8. Alberta & Southern Gas Company Limited	GL-16 (AO-1)	Kingsgate, B.C.	1/11/66 1/11/67	31/10/67 31/10/89	113,125 226,250	37,415) 74,830)	1,614,000
9. Canadian-Montana Pipe Line Company	GL-17 (AO-1)	Cardston, Alta.	1/11/66 1/11/67	31/10/67 31/10/89	12,000 24,000	3,650) 7,300)	164,250
10. Trans-Canada Pipe Lines Limited	GL-18 (AO-3)	Emerson, Man.	22/11/65 1/11/66	31/10/68 31/10/89	25,000 143,000	8,000) 52,300)	1,200,000
11. Trans-Canada Pipe Lines Limited	GL-19 (AO-1)	Philipsburg, Que.	1/11/65	31/10/89	17,700	6,500	108,000

APPENDIX IV

APPENDIX IV (cont'd)

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SUBSISTING LICENCES AND ORDERS TO EXPORT NATURAL GAS AS AT 31 DECEMBER 1969

EXPORTER	LICENCE OR ORDER NUMBER	POINT OF EXPORT	TERM OF LICENCE OR ORDER		MAXIMUM EXPORT VOLUMES		
			FROM	TO	DAILY (Mcf)	ANNUAL (MMcf)	TERM (MMcf)
12. Trans-Canada Pipe Lines Limited	GL-20 (AO-4)	Emerson, Man.	21/11/68	31/10/91	87,600	32,100	765,000
13. Trans-Canada Pipe Lines Limited	GL-21 (AO-4) ^(b)	Emerson, Man.	5/11/68	31/10/91	677,000	247,782	6,000,000
14. Westcoast Transmission Company Limited	PC1955-958 (AO-2)	Huntingdon, B.C.	1/ 1/66	2/10/77	303,450	N/S	1,192,500
15. Westcoast Transmission Company Limited	GL-23 (AO-6)	Huntingdon, B.C.	1/11/66 1/11/67 22/ 2/68	31/10/67 21/ 2/68 31/10/88	101,150 101,150 202,300	36,920) 24,579) 74,040)	1,514,720
16. Alberta & Southern Gas Company Limited	GL-24 (AO-2)	Kingsgate, B.C.	1/11/68 1/11/69 1/11/91	31/10/69 31/10/91 31/10/93	121,000 236,000 135,400	38,900) 77,900) 44,600)	1,841,900
17. Canadian-Montana Pipe Line Company	GL-25 (AO-2)	Cardston, Alta.	1/11/68 1/11/69 1/11/91	31/10/69 31/10/91 31/10/93	12,000 24,000 13,800	3,650) 7,300) 4,200)	172,650
18. Patrick T. Buckley	GO-1-68	Coutts, Alta.	1/ 6/68	31/ 5/73	1 ^(c)	5	N/S

APPENDIX IV (cont'd)

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SUBSISTING LICENCES AND ORDERS TO EXPORT NATURAL GAS AS AT 31 DECEMBER 1969

- (a) Daily and annual volumes increased to 110,000 Mcf and 25,000 MMcf respectively, for the period 1/11/69 to 31/10/70.
- (b) This licence authorizes an export at Emerson, Manitoba for re-import at Sault Ste. Marie and Sarnia, Ontario to serve the Eastern Canadian Market.
- (c) Not more than 1 MMcf in any one month.
- N/S Not specified.

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APPENDIX V

EXPORTS OF NATURAL GAS

EXPORTER AND LICENCE/ORDER	MAXIMUM		(MMcf)						CUMULATIVE TO 31/12/69	TOTAL AUTHORIZED EXPORTS	REMAINING UNDER LICENCES
	DAILY (Mc f)	ANNUAL (MMcf)	1965	1966	1967	1968	1969				
1. Trans-Canada Pipe Lines Limited GL-1(AO-2)	223,000	74,000	73,987	73,763	74,700	73,999	74,188	638,367	1,410,000	771,633	
2. Trans-Canada Pipe Lines Limited GL-2(AO-5)	96,900	20,663 ^(b)	-	-	-	455	11,099	11,554	N/S	N/A	
3. Alberta & Southern Gas Company Limited ^(c) GL-3(AO-3)	458,750	153,270	152,599	159,560	164,038	159,357	164,895	1,200,793	3,826,000	2,625,207	
4. Westcoast Transmission Company Limited GL-4(AO-3)	152,000	51,000	42,627	43,576	47,600	50,437	47,990	352,614	1,020,000	667,386	
5. Canadian-Montana Pipe Line Company ^(c) GL-5(AO-3)	36,000	10,950	10,927	10,904	10,225	12,059	11,966	87,826	273,750	185,924	
6. Niagara Gas Transmission Limited GL-6(AO-4)	23,000	5,520	3,144	3,371	3,994	4,394	5,361	24,286	121,190	96,904	

APPENDIX V

APPENDIX V (cont'd)

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EXPORTS OF NATURAL GAS

EXPORTER AND LICENCE/ORDER	MAXIMUM		(MMcf)					CUMULATIVE TO 31/12/64	(MMcf)			CUMULATIVE TO 31/12/69	TOTAL AUTHORIZED EXPORTS	REMAINING UNDER LICENCES
	DAILY (Mcf)	ANNUAL (MMcf)	1965	1966	1967	1968	1969		1965	1966	1967	1968	1969	
7. Patrick T. Buckley GL-7(AO-1) ^(e)	1.3 ^(f)	10	2	2	2	2 ^r	-	14	2	2	2	22 ^r	N/S	N/A
8. Canadian-Montana Pipe Line Company GL-8(AO-1)	99,460	19,892	18,379	19,602	16,579	17,344	17,176	73,245 ^{r(g)}				162,325	220,000	57,675
9. Alberta & Southern Gas Company Limited ^(c) GL-16(AO-1) 1/11/66 to 31/10/67 1/11/67 to 31/10/89	113,125 226,250	37,415 74,830	-	6,253	42,068	75,833	52,769	-				176,923)	1,614,000	1,437,077
10. Canadian-Montana Pipe Line Company ^(c) GL-17(AO-1) 1/11/66 to 31/10/67 1/11/67 to 31/10/89	12,000 24,000	3,650 7,300	-	613	3,966	7,232	6,405	-				18,216)	164,250	146,034

APPENDIX V (cont'd)

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EXPORTS OF NATURAL GAS

EXPORTER AND LICENCE/ORDER	MAXIMUM		(MMcf)					CUMULATIVE TO 31/12/64	(MMcf)			CUMULATIVE TO 31/12/69	TOTAL AUTHORIZED EXPORTS	REMAINING (a) UNDER LICENCES
	DAILY (Mc)	ANNUAL (MMcf)	1965	1966	1967	1968	1969		1968	1969	1970			
11. Trans-Canada Pipe Lines Limited GL-18(AO-3) 1/11/65 to 31/10/68 ^(h) 1/11/66 to 31/10/89 ⁽ⁱ⁾	25,000 143,000	8,000 52,300	- -	3,385 -	2,525 6,493	2,089 41,108	- 43,604	- -	- -	- -	- -	7,999 91,205	1,200,000	1,100,796
12. Trans-Canada Pipe Lines Limited GL-19(AO-1)	17,700	6,500	-	270	613	1,452	2,095	-	-	-	-	4,430	108,000	103,570
13. Trans-Canada Pipe Lines Limited GL-20(AO-4)	87,600	32,100	-	-	-	1,073	19,895	-	-	-	-	20,968	765,000	744,032
14. Trans-Canada Pipe Lines Limited ^(j) GL-21(AO-4)	677,000	247,782	-	-	-	19,906	159,449	-	-	-	-	179,355	6,000,000	5,820,645
15. Trans-Canada Pipe Lines Limited GL-22(AO-4)	N/S	N/S	-	-	-	2,592	-	-	-	-	-	2,592	3,000	N/A

APPENDIX V (cont'd)

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APPENDIX V (cont'd)

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EXPORTS OF NATURAL GAS

EXPORTER AND LICENCE/ORDER	MAXIMUM		(MMcf)						CUMULATIVE TO 31/12/69	TOTAL AUTHORIZED EXPORTS	REMAINING UNDER LICENCES
	DAILY (McF)	ANNUAL (MMcf)	1965	1966	1967	1968	1969				
16. Westcoast Transmission Company Limited PC1955-958 (AO-2) 1955 to 31/12/65 1/1/66 to 2/10/77	304,000 303,450	100,000 N/S	103,044 -	- 110,520	- 118,783	- 109,152	- 103,163	724,280 441,618	N/A 1,192,500	N/A 750,882	
17. Westcoast Transmission Company Limited GL-23(AO-6) 1/11/66 to 31/10/67 1/11/67 to 21/ 2/68 22/ 2/68 to 31/10/88	101,150 101,150 202,300	36,920 24,579 74,040	- - -	- 21,645	- 39,693	- 68,775	- 130,113	- 1,384,607	- 1,514,720	- 1,384,607	
18. Alberta & Southern Gas Company Limited GL-24(AO-2) 1/11/68 to 31/10/69 1/11/69 to 31/10/91 1/11/91 to 31/10/93	121,000 236,000 135,400	38,900 77,900 44,600	- - -	- -	- 6,173	- 46,445	- 52,618	- 1,841,900	- 1,789,282	- 1,789,282	
19. Canadian-Montana Pipe Line Company GL-25(AO-2) 1/11/68 to 31/10/69 1/11/69 to 31/10/91 1/11/91 to 31/10/93	12,000 24,000 13,800	3,650 7,300 4,200	- - -	- -	- 4,283	- 172,650	- 168,367	- 4,283	- 172,650	- 168,367	

APPENDIX V (cont'd)

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APPENDIX V (cont'd)

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EXPORTS OF NATURAL GAS

EXPORTER AND LICENCE/ORDER	MAXIMUM		(MMcf)					CUMULATIVE TO 31/12/64	CUMULATIVE TO 31/12/69	TOTAL AUTHORIZED EXPORTS	REMAINING UNDER LICENCES (a)
	DAILY (Mcf)	ANNUAL (MMcf)	1965	1966	1967	1968	1969				
20. Patrick T. Buckley GO-1-68(k)	1 ⁽¹⁾	5	-	-	-	(m)	(m)			N/S	N/A
21. Union Gas Company of Canada Limited EO-2-63	N/S	N/S	-	-	-	-	-	55 ^r	55	200	N/A
Gross Exports Deduct Item 14, GL-21 Export for Re-Import			404,709	431,819	513,231	624,350	839,558	1,518,775	4,332,442		
Net Exports			-	-	-	19,906	159,449	-	179,355		
			404,709	431,819	513,231	604,444	680,109	1,518,775	4,153,087		

EXPORTS OF NATURAL GAS

FOOTNOTES

- (a) It may not be possible to export total volumes remaining under licences due to restrictions on peak day and annual volumes.
- (b) Daily and annual volumes increased to 110,000 Mcf and 25,000 MMcf respectively, for the period 1/11/69 to 31/10/70.
- (c) Volumes exceed licenced annual amounts due to make-up of accumulated shortfalls from previous years as authorized by licence.
- (d) Includes 1 MMcf authorized export in 1962 prior to September 7, 1962 under GL-6(AO-3) effective at that time.
- (e) Replaced by GO-1-68 on 1 June 1968.
- (f) 1.3 MMcf per month.
- (g) Excludes exports prior to 1/9/60, effective commencement date of licence GL-8.
- (h) Interruptible. Terminated on 31 October 1968.
- (i) Firm.
- (j) This licence authorizes an export at Emerson, Manitoba for re-import at Sault Ste. Marie and Sarnia, Ontario to serve the Eastern Canadian market.
- (k) Replaced GL-7 on 1 June 1968.
- (l) 1 MMcf per month.
- (m) Negligible quantity exported.
- (r) Revised.
- N/S Not specified.
- N/A Not applicable.

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APPENDIX VINEW LICENCES AND ORDERS TO IMPORT NATURAL GAS ISSUED DURING 1969A. LICENCES - NATURAL GAS IMPORT - SECTION 82

None issued

B. ORDERS AMENDING EXISTING NATURAL GAS IMPORT LICENCES - SECTION 17

None issued

C. ORDERS - NATURAL GAS IMPORT - PART VI REGULATIONS - SECTION 17

None issued

D. ORDERS AMENDING EXISTING NATURAL GAS IMPORT ORDERS - SECTION 17

None issued

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APPENDIX VII

SUBSISTING LICENCES AND ORDERS TO IMPORT NATURAL GAS AS AT 31 DECEMBER 1969

IMPORTER	LICENCE OR ORDER NUMBER	POINT OF IMPORT	<u>TERM OF LICENCE OR ORDER</u>		<u>MAXIMUM IMPORT VOLUMES</u>		
			FROM	TO	DAILY (Mcf)	ANNUAL (MMcf)	TERM (MMcf)
1. Union Gas Company of Canada Limited	PC1956-1848	Ojibway, Ont.	17/12/56	31/ 3/70	N/S	5,500	N/S
2. Union Gas Company of Canada Limited	GLI-1	Ojibway, Ont.	1/ 2/65	5/11/76	55,000	15,500	170,000
3. Trans-Canada Pipe Lines Limited	GLI-2 (AO-2)	Niagara Falls, Ont.	1/11/65	1/11/66	N/S	25,500)	86,500
			1/11/66	1/11/67	N/S	30,400)	
			1/11/67	1/11/68	N/S	15,300)	
			1/11/68	1/11/69	N/S	10,200)	
			1/11/69	1/11/70	N/S	5,100)	
4. Border Utilities Limited	GO-2-66	Coutts, Alta.	2/ 6/66	14/ 9/85	1,000	N/S	N/S
5. Milk River Gas Company	GO-6-66	Coutts, Alta.	22/ 9/66	14/ 9/85	1,000	N/S	N/S
6. Trans-Canada Pipe Lines Limited	GL-21 (AO-4) ^(a)	(Sault Ste. Marie, Ont.) (Sarnia, Ont.)	5/11/68	31/10/91	677,000	247,782	6,000,000

(a) This licence authorizes an export at Emerson, Manitoba for re-import at Sault Ste. Marie and Sarnia, Ontario to serve the Eastern Canadian Market.

N/S Not specified

* * * *

APPENDIX VIII

IMPORTS OF NATURAL GAS

IMPORTER AND LICENCE/ORDER	MAXIMUM		CUMULATIVE TO 31/12/64	(MMcf)					CUMULATIVE TO 31/12/69	TOTAL AUTHORIZED IMPORTS	REMAINING UNDER LICENCES
	DAILY (Mcf)	ANNUAL (MMcf)		1965	1966	1967	1968	1969			
1. Coutts Gas Company Limited ^(b) PC1955-1742	N/S	120	675	99	17	-	-	-	791	2,340	N/A
2. Border Utilities Limited GO-2-66	1,000	N/S	-	-	27	33	32	36	128	N/S	N/A
3. Milk River Gas Company Limited GO-6-66	1,000	N/S	-	-	62	73	72	76	283	N/S	N/A
4. Union Gas Company of Canada Limited PC1956-1848	N/S	5,500	59,438	5,404	5,404	2,316	-	-	72,562	N/S	N/A
5. Union Gas Company of Canada Limited GLI-1	55,000	15,500	-	7,856	10,140	12,814	15,192	11,449	57,451	167,042 ^(c)	109,591
											... 2

APPENDIX VIII (cont'd)

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IMPORTS OF NATURAL GAS

IMPORTER AND LICENCE/ORDER	MAXIMUM		(MMcf)					CUMULATIVE TO 31/12/69	TOTAL AUTHORIZED IMPORTS	REMAINING (a) UNDER LICENCES
	DAILY (Mcf)	ANNUAL (MMcf)	CUMULATIVE TO 31/12/64	1965	1966	1967	1968	1969		
6. Trans-Canada Pipe Lines Limited GLI-2(AO-2)										
1/11/65 to 1/11/66	N/S	25,500	()		
1/11/66 to 1/11/67	N/S	30,400	()		
1/11/67 to 1/11/68	N/S	15,500	(	4,267	24,677	29,543	13,498	5,054	86,500	9,461
1/11/68 to 1/11/69	N/S	10,200	()		
1/11/69 to 1/11/70	N/S	5,100	()		
7. Tecumseh Gas Storage Limited GLI-3	20,000	3,000	-	-	2,958	2,938	-	-	5,896(c)	-
8. Trans-Canada Pipe Lines Limited GLI-4(AO-6)	N/S	N/S	-	-	-	12,836	47,873	18,320	82,303	N/A
9. Trans-Canada Pipe Lines Limited (d) GLI-21(AO-4)	677,000	247,782	-	-	-	-	19,930	157,207	6,000,000	5,822,863
10. Trans-Canada Pipe Lines Limited EO-2-62	N/S	N/S	2	-	-	-	-	-	5	N/A

... 3

APPENDIX VIII (cont'd)

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IMPORTS OF NATURAL GAS

IMPORTER AND LICENCE/ORDER	MAXIMUM		(MMcf)					CUMULATIVE TO 31/12/64				CUMULATIVE TO 31/12/69	TOTAL AUTHORIZED IMPORTS	REMAINING (a) UNDER LICENCES
	DAILY (McF)	ANNUAL (MMcf)	1965	1966	1967	1968	1969							
11. Trans-Canada Pipe Lines Limited EO-1-63	70,000	N/S	-	-	-	-	-	199	-	-	-	199	1,000	N/A
12. Union Gas Company of Canada Limited EO-2-63	N/S	N/S	-	-	-	-	-	55	-	-	-	55	55	-
13. Union Gas Company of Canada Limited EO-3-63	N/S	N/S	-	-	-	-	-	1,083	-	-	-	1,083	1,965(c)	N/A
14. Trans-Canada Pipe Lines Limited EO-1-64	140,000	N/S	-	-	-	-	-	2,511	-	-	-	2,511	2,500	N/A
15. Trans-Canada Pipe Lines Limited EO-2-64(AO-1)	150,000	N/S	120	-	-	-	-	1,636	-	-	-	1,756	3,450	N/A
16. Union Gas Company of Canada Limited EO-2-66(AO-1)	N/S	N/S	-	1,321	6,540	-	-	-	-	-	-	7,861	7,861(c)	-

... 4

APPENDIX VIII (cont'd)

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IMPORTS OF NATURAL GAS

IMPORTER AND LICENCE/ORDER	MAXIMUM		(MMcf)					CUMULATIVE TO 31/12/64	(MMcf)			CUMULATIVE TO 31/12/69	TOTAL AUTHORIZED IMPORTS	REMAINING UNDER LICENCES
	DAILY (Mcf)	ANNUAL (MMcf)	1965	1966	1967	1968	1969		1965	1966	1967	1968	1969	
17. Union Gas Company of Canada Limited EO-1-67	N/S	N/S	-	-	2,974	4,887	-	-	-	-	-	7,861	7,861 ^(c)	-
18. Trans-Canada Pipe Lines Limited EO-2-67	N/S	N/S	-	-	389	-	-	-	-	-	389	389	500	N/A
Gross Imports Deduct Item 9, GL-21 Re-Import of Export			65,599	17,746	44,606	70,456	101,484	192,142	492,033					
			-	-	-	-	19,930	157,207	177,137					
Net Imports			65,599	17,746	44,606	70,456	81,554	34,935	314,896					

(a) It may not be possible to import total volumes remaining under licences due to restrictions on peak day and annual volumes.
 (b) Licence cancelled in January 1966.

(c) Converted from "wet base" to "dry base" for purpose of comparability.

(d) This licence authorizes an export at Emerson, Manitoba for re-import at Sault Ste. Marie and Sarnia, Ontario to serve the Eastern Canadian market.

N/S Not specified.

N/A Not applicable.

* * * *

APPENDIX IX

(Barrels of 35 Canadian Gallons)

Total Districts I-IV

APPENDIX IX (cont'd)

EXPORTS OF CRUDE OIL AND EQUIVALENT TO THE UNITED STATES 1968 AND 1969

(Barrels of 35 Canadian Gallons)

District V	1968		1969	
	Total for Year	Daily Average	Total for Year	Daily Average
Douglas Oil of California	-	-	303,194	830
Humble Oil and Refining Company	-	-	1,820,649	4,988
Mobil Oil Company	18,044,216	49,301	21,105,245	57,823
Mobil Oil Company	133,764	365	-	-
Shell Oil Company	19,376,574	52,942	28,845,474	79,029
Shell Oil Company	-	-	2,253,217	6,173
Texaco Incorporated	22,506,065	61,492	21,464,378	58,807
Total District V	60,060,619	164,100	75,792,157	207,650
Total U.S.A.	169,268,030 ^r	462,482 ^r	202,702,588	555,350

(r) revised

(a) Includes quantities for delivery to Continental Oil Company, Denver, Colorado, 1968-9;
Atlantic Richfield Company, Sinclair, Wyoming, 1969;
Farmers Union Central Exchange, Inc., Laurel, Montana, 1968-9;
Humble Oil and Refining Company, Billings, Montana, 1968-9.

* * * * *

APPENDIX X

IMPORTS AND NET TRANSFERS (a) OF PETROLEUM PRODUCTS INTO REGION 3 (b) 1961 - 1969

(Barrels of 35 Canadian gallons per day)

	MOTOR GASOLINE	MIDDLE DISTILLATES	TOTAL LIGHT OILS	RESIDUAL FUEL OIL	OTHER PRODUCTS	TOTAL RESID. & OTHER PROD.	TOTAL ALL PRODUCTS
1961	16,586	24,909	41,495	6,715	7,131	13,846	55,341
1962	14,537	20,001	34,538	9,632	8,394	18,026	52,564
1963	13,931	18,905	32,836	11,911	6,208	18,119	50,955
1964	1,845	9,136	10,981	14,841	7,549	22,390	33,371
1965	2,062	10,468	12,530	18,273	7,843	26,116	38,646
1966	3,889	16,294	20,183	16,964	9,199	26,163	46,346
1967	5,273	19,015	24,288	14,726	13,955	28,681	52,969
1968	6,684	24,249	30,933	15,074	14,782	29,856	60,789
1969(c)	7,844	19,667	27,511	17,666	17,399	35,065	62,576

(a) Reported as transfers from Regions 1 and 2 to Regions 3, 4, 5 and 6.

(b) Ontario west of the "Ottawa Valley Line".

(c) Subject to revision.

Source: Company reports to the National Energy Board.

* * * * *

IMPORTS OF CRUDE OIL AND PETROLEUM PRODUCTS 1968 AND 1969

(Barrels of 35 Canadian gallons per day)

	<u>1968^(r)</u>	<u>1969^(a)</u>
Crude Oil	486,812	522,439
Petroleum Products	<u>202,171</u>	<u>203,398</u>
TOTAL	688,983	725,837

(r) revised.

(a) subject to revision.

Source: Company reports to the National Energy Board.

* * * *

APPENDIX XII

PIPE LINE LEAKS, BREAKS AND MALFUNCTIONS

The following is a summary of leaks, breaks, malfunctions and other pipe line incidents reported to the Board during 1969 by companies under the jurisdiction of the National Energy Board:

<u>Origin of Reported Incidents</u>	<u>Number of Incidents</u>
Internal and external corrosion of pipe and equipment	19
Defective Mill Welds	9
Defective Field Welds	2
Pipe Material Defects	3
Defective Equipment and Piping	16
Failures due to Lightning	2
Miscellaneous	5
	—
TOTAL	56
	==

APPENDIX XIII

NEW LICENCES AND ORDERS TO EXPORT ELECTRIC POWER AND ENERGY ISSUED DURING 1969

A. NEW LICENCES ISSUED IN 1969 PURSUANT TO SECTION 82

None issued

B. NEW ORDERS ISSUED IN 1969 PURSUANT TO SECTION 6A OF THE REGULATIONS UNDER PART VI OF THE ACT*

APPLICANT	CLASS	KILOWATTS	ANNUAL KILOWATTHOURS (THOUSAND)	TERM FROM DATE OF ISSUE - MONTHS	ISSUED	ORDER NUMBER
West Kootenay Power and Light Company Limited	Firm	20	50	36	29/12/69	ELO-79

* Under Section 6A the Board may by order authorize the exportation of not more than 4,000 kilowatts of electrical power and not more than 20,000,000 kilowatthours per year of electrical energy for a term not exceeding three years upon such terms and conditions as the Board may prescribe.

APPENDIX XIII (cont'd)

NEW LICENCES AND ORDERS TO EXPORT ELECTRIC POWER AND ENERGY ISSUED DURING 1969

C. AMENDING ORDERS ISSUED IN 1969 RELATIVE TO ELECTRIC POWER EXPORT LICENCES

APPLICANT	ASSOCIATED LICENCE	ISSUED	ORDER NUMBER
1. British Columbia Hydro and Power Authority	EL-8	23/ 4/69	AO-3-EL-8
2. British Columbia Hydro and Power Authority	EL-8	8/ 7/69	AO-4-EL-8
3. British Columbia Hydro and Power Authority	EL-8	18/12/69	AO-5-EL-8
4. British Columbia Hydro and Power Authority	EL-9	23/ 4/69	AO-5-EL-9
5. British Columbia Hydro and Power Authority	EL-9	8/ 7/69	AO-6-EL-9
6. British Columbia Hydro and Power Authority	EL-9	18/12/69	AO-7-EL-9

* * * *

APPENDIX XIV

EXPORTS OF ELECTRIC ENERGY - CALENDAR YEAR 1969

EXPORTER	LICENCE NUMBER	THOUSANDS OF KILOWATTHOURS				REPORTED DOLLAR VALUE OF EXPORT	
		LICENCE AUTHORIZATION		GROSS ENERGY EXPORTED		FIRM	INTERRUPTIBLE
		FIRM	INTERRUPTIBLE	FIRM	INTERRUPTIBLE		
1. Maine and New Brunswick Electrical Power Company Limited	EL-22 EL-23	250,000	25,000	124,692	-	\$ 1,023,682.00	\$ -
2. Fraser Companies, Limited	EL-37 EL-38	120,000	30,000	115,113	15,887	1,093,470.00	150,931.00
3. The New Brunswick Electric Power Commission	EL-39 EL-40 EL-41 EL-42 EL-43 ELO-72-74	225,000 76,180 100,000 225	150,000 116,000	123,268 13,361 20,563 128	41,844 29,584	759,117.00 96,687.00 (a) 4,449.00	234,612.00 223,889.00
SUB TOTAL NEW BRUNSWICK			500,000	397,125	87,315	2,977,405.00	609,432.00
4. Cedars Rapids Transmission Company Limited	EL-44				201,723		513,694.00
5. Quebec Hydro-Electric Commission	ELO-64 to 70 & 75	408		329		4,627.00	
6. Southern Canada Power Company Limited	AO-2-EL-30 AO-2-EL-31	19,850	61,250	14,346	14,781	182,491.00	86,136.00
SUB TOTAL QUEBEC				14,675	216,504	187,118.00	599,830.00

APPENDIX XIV (cont'd)

page 2

EXPORTS OF ELECTRIC ENERGY - CALENDAR YEAR 1969

EXPORTER	LICENCE NUMBER	THOUSANDS OF KILOWATTHOURS				REPORTED DOLLAR VALUE OF EXPORT	
		LICENSE AUTHORIZATION		GROSS ENERGY EXPORTED		FIRM	
		FIRM	INTERRUPTIBLE	FIRM	INTERRUPTIBLE	FIRM	INTERRUPTIBLE
7. The Hydro-Electric Power Commission of Ontario	EL-32 EL-33 EL-34	15,000	5,500,000 105,000	1,066	2,175,148 14,092	2,131.00	11,628,100.00 64,340.11
8. Canadian Niagara Power Company Limited	EL-35 EL-36	307,000	205,000	306,269	68,854	1,673,993.00	309,842.00
9. The Ontario-Minnesota Pulp and Paper Company, Limited	EL-28	118,260		113,024		819,079.00	
10. The Detroit and Windsor Subway Company	ELO-77	1,000		566		-	
11. The Canadian Transit Company	ELO-71	25		24		-	
SUB TOTAL ONTARIO				420,949	2,258,094	2,495,203.00	12,002,282.11
12. Manitoba Hydro-Electric Board	ELO-78	15		6		143.00	
SUB TOTAL MANITOBA				6	-	143.00	-

... 3

EXPORTS OF ELECTRIC ENERGY - CALENDAR YEAR 1969

EXPORTER	LICENCE NUMBER	THOUSANDS OF KILOWATTHOURS				REPORTED DOLLAR VALUE OF EXPORT	
		LICENCE AUTHORIZATION		GROSS ENERGY EXPORTED		FIRM	INTERRUPTIBLE
		FIRM	INTERRUPTIBLE	FIRM	INTERRUPTIBLE		
13. British Columbia Hydro and Power Authority	AO-4-EL-8 AO-7-EL-9 ELO-76	5,500 600	1,500,000	4,848 98	1,064,179	\$(b) (b)	\$(b) (b)
14. Cominco Limited	AO-1-EL-20 EL-45		500,000 1,500,000		3,936 220,025	(b)	(b)
15. West Kootenay Power and Light Company Limited	ELO-63	50		35		677.00	-
SUB TOTAL BRITISH COLUMBIA				4,981	1,288,140	(b)	(b)
TOTAL CANADA				837,736	3,850,053	(b)	(b)

(a) No dollar value. Carrier Transfer Energy wheeled through Maine, back to New Brunswick.

(b) Not reported.

* * * *

APPENDIX XV

TOTAL CANADIAN ELECTRIC ENERGY SUPPLY AND TRADE WITH THE UNITED STATES - CALENDAR YEAR 1969

(MILLIONS OF KILOWATTHOURS)

Electric Energy Generation for all Canada	-	190,419 (preliminary)
Electric Energy Importation from U.S.A.	-	<u>3,333</u> "
Total Canadian Electric Energy Supply	-	193,752 "
Electric Energy Export (Gross) to U.S.A.	-	838 (firm) - 0.4% Canadian Supply
		3,850 (interruptible) - 2.0% of Canadian Supply

* * *

APPENDIX XVI

CHART SHOWING BY YEAR
TOTAL NUMBER OF BOARD CERTIFICATES,
LICENCES, ORDERS AND PERMITS
ISSUED BETWEEN 1959 - 1969

1,100

1,000

900

800

700

600

500

400

300

200

100

0

NUMBER

(PARTIAL YEAR)

1959

1960

1961

1962

1963

1964

1965

1966

1967

1968

1969

APPENDIX XVI

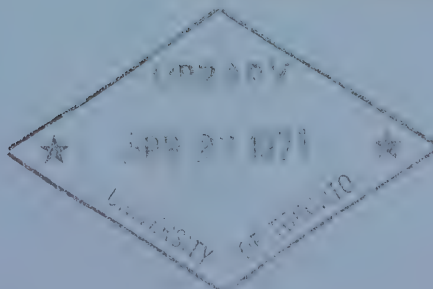
NOTE :
NATIONAL ENERGY BOARD ACT
WAS PROCLAIMED ON THE 2ND.
DAY OF NOVEMBER, 1959.



NATIONAL ENERGY BOARD

ANNUAL REPORT

FOR THE YEAR ENDED
31 DECEMBER 1970



NATIONAL ENERGY BOARD

Annual Report

FOR THE YEAR ENDED

31 December 1970

Information Canada
Ottawa, 1971

Cat. No. NE1-1970

NATIONAL ENERGY BOARD
OTTAWA 4, ONT.



OFFICE NATIONAL DE L'ÉNERGIE
OTTAWA 4, ONT.

File No. 7-2-8

31 March 1971

The Honourable J.J. Greene, P.C.,
Minister of Energy, Mines and
Resources,
O t t a w a.

Dear Sir:

In accordance with the provisions of
Section 91 of the National Energy Board Act,
Statutes of Canada, 1959, Chapter 46, I have the
pleasure to submit the Annual Report of the Board
for the year ending 31 December, 1970.

Yours faithfully,

A handwritten signature in cursive script, reading "Robert D. Howland".

(Robert D. Howland)
Chairman.

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NATIONAL ENERGY BOARD

R.D. Howland	-	Chairman
D.M. Fraser	-	Vice-Chairman
H.L. Briggs	-	Member
Maurice Royer	-	Member (Resigned 1 Oct 70)
J.G. Stabback	-	Member
A. Cossette Trudel	-	Member (Appointed 1 Oct 70)
Robert A. Stead	-	Secretary
B.H. Whittle	-	Assistant Secretary
Vacant	-	Director, Economics Branch
W.A. Scotland	-	Chief Engineer, Engineering Branch
E.B. McDougall	-	Financial Adviser, Financial Branch
F.H.J. Lamar	-	Board Counsel, Law Branch
Vacant	-	Director, Operations Research Branch

NATIONAL ENERGY BOARD

ANNUAL REPORT

The year 1970, which is the subject of this report with respect to the work of the National Energy Board, was one of change and increased activity. It was a year in which Parliament approved significant changes to the National Energy Board Act. It was also a year which was characterized by the number and variety of matters dealt with and by the impact of the Board's decisions upon the sector of the energy industry subject to its regulation and about which the government looks to the Board for advice.

The broad purpose in establishing the National Energy Board in 1959 was and continues to be to assure to Canadians the best use of energy resources.

The Board is responsible for adjudicating upon applications for licences to export and to import natural gas, applications to construct and operate interprovincial and international pipe lines for the transportation of petroleum and its products and of natural gas, and applications for licences to export electrical power and energy and for certificates to construct and operate international power lines. It is responsible for regulating the rates, tolls

and tariffs of oil and gas pipe lines under its jurisdiction, a field in which it is becoming increasingly active.

In addition, the Board has an advisory role. It is required to keep under review all matters relating to energy within the jurisdiction of the Parliament of Canada and to recommend to the Minister any measures that the Board considers necessary or advisable to undertake in the public interest to ensure proper use and development of energy and its sources.

In June 1970 the National Energy Board Act was amended bestowing on the Board certain additional responsibilities. The Board was given jurisdiction over international power lines constructed and operated for the purpose of importing power into Canada on a basis comparable to the jurisdiction which it had exercised previously over export power lines only. The existing authority of the National Energy Board to licence the import of gas was extended to include the licensing for import of liquefied natural gas. Certain other amendments dealing with the construction of pipe lines through municipal and private farm areas provided the Board with the authority to direct the pipe line company to divert, relocate or otherwise reconstruct the appropriate portions of its pipe line so as to remove an existing interference or to otherwise facilitate reconstruction or relocation of drainage system.

Also, as a result of a proclamation by the Governor in Council, under Section 87 of the Act, the provisions of the Act relating to exports and imports were made applicable to oil. By regulations made immediately thereafter under Part VI of the Act, the effect of this extension was defined, with the result that the Board became responsible for the licensing of the importation into Canada of motor gasoline and motor gasoline blending components.

Further regulations pursuant to Part VI of the Act were made to impose a mandatory condition on each licence issued by the Board for the exportation of gas. This condition requires that the price to be charged for such gas shall be subject to review by the Board and where, in the opinion of the Board, there has been a significant increase in prices for competing gas supplies or for alternative energy sources, the Governor in Council, may on the recommendation of the Board, order the establishment of a new price.

Because of the increase in the Board's workload arising out of its previously existing regulatory and advisory functions and the additional responsibilities placed upon it by Parliament in 1970, the membership of the Board was increased from five to seven.

During 1970 Mr. Maurice Royer, a member of the Board for 10 years, retired due to ill health. By the close of the year three new members had been appointed. They are, Mr. A. Cossette Trudel and Mr. C.G. Edge, both of Montreal, and Mr. Neil J. Stewart of Calgary. Mr. Stewart was also designated Associate Vice-Chairman of the Board. These gentlemen together with Dr. Robert D. Howland, Chairman, Mr. Douglas M. Fraser, Vice-Chairman, and members, Mr. H. Lee Briggs and Mr. J.G. Stabback, brought the Board to its full complement of seven under the amended Act. All members of the Board are full-time members and each is appointed by the Governor in Council to hold office for a term of seven years with provision for reappointment or until a member reaches the age of seventy.

The Board had somewhat greater success in 1970 than in the past years in recruiting additional staff to provide it with the technical expertise and professional advice it requires to carry out its responsibilities under the Act. Where it was impossible for one reason or another to recruit staff in certain professional fields and with specific technical skills, the Board employed consultants. The strength of the Board as at 31 December, 1970 was 167 as compared with 148 for the same date in 1969.

The budget appropriation for the Board for the

1970-71 fiscal year totalled \$2,438,000 of which \$1,948,000 was for salaries and \$490,000 was for all other expenses.

MAJOR ISSUES OF 1970

In any review of a year's work there are generally several major issues which because of the public interest they generate, predominate and overshadow to a certain degree the myriad day-to-day tasks of any organization. Two such issues heavily engaged the Board's resources during 1970 and are worthy of separate treatment in this report.

The first of these was the combined hearing held by the Board on natural gas exports. The second had to do with the extension of the licensing provisions of the Board's Act to the importation of oil and oil products.

With respect to the first, the Board's Annual Report for 1969 referred to the gas export applications and the fact that at the close of the year the combined hearing was still in progress. To recapitulate briefly, the Board, during 1969, received applications for licences to export natural gas and for certificates to construct pipe line facilities as follows:

<u>Applicant</u>	<u>Export Licences</u>		<u>Facilities Certificates</u> (Cost in \$ Millions)
	<u>Quantity</u> (Trillion cubic feet)	<u>Term</u> (Years)	
Alberta and Southern Gas Co. Ltd.	1.6	23	-
Alberta Natural Gas Company	-	-	8
Canadian-Montana Pipe Line Co.	0.1	23	-
Consolidated Natural Gas Ltd.	1.6	25	-
Consolidated Pipe Lines Co.	-	-	68
Trans-Canada Pipe Lines Limited	2.3	25	59
Westcoast Transmission Company Limited	3.3	1+18 ⁽¹⁾	135
Totals:	8.9		270

The combined hearing on these applications was held in Ottawa commencing on 25 November, 1969 and ending on 20 March, 1970, occupying 54 sitting days and resulting in

Note (1)

Westcoast applied for,

- (a) a licence to export 75,863 thousand cubic feet per day commencing 1 November, 1970 and
- (b) a "Combined Licence" which would commence one year later on 1 November, 1971 and which would embody the licence specified in (a) above as well as Westcoast's two existing export licences, PC1955-958 and GL-23. This "Combined Licence" would have a term of 18 years.

approximately 6,100 pages of transcript. Some 150 exhibits were filed and representations were heard from more than 40 parties. Each of the provinces, from Quebec west to British Columbia, was represented, as were industry associations and all sectors of the natural gas industry, the producers, the transmission companies, the distributors and the consumers. Thus the Board had the benefit of knowledgeable advice from a wide range of interested parties.

The results of the Board's deliberations were contained in its report to the Governor in Council dated August 1970. The Cabinet announced its acceptance of the Board's recommendations on 29 September 1970.

In determining the amount of surplus natural gas available for export, the Board decided that it should continue to provide protection for future Canadian requirements on the same basis it had previously used. However, on the matter of reserves, the Board liberalized its approach to the portions of reserves deferred for conservation and reserves beyond economic reach. The Board also adopted a new method of calculating future surplus which appears likely to be more realistic and more readily understandable than its previous method.

On the matter of the determination of the justness and reasonableness in relation to the public interest of the prices to be charged for gas proposed to be exported, the

Board concluded that it should continue, wherever and to the extent appropriate, to use the three tests described in its 1967 Report on an application by Westcoast Transmission Company Limited. Briefly these three tests are that the export price should recover the costs incurred, should be not less than the comparable price to customers in Canada and should not result in prices in the export market materially less than the least cost alternative for energy from indigenous sources.

The Board concluded that a surplus of 6.4 Tcf was currently available for export. This compared with the aggregate of 8.9 Tcf for which export licences were being sought, so there would be a deficit of 2.5 Tcf if all the applications were granted in full. In the light of this deficit, the Board had to choose whether to approve all the applications at reduced volume and/or reduced term, to deny some and approve others in toto, or to deal with each application on its individual merits, within the general constraint of the total surplus available for export. The Board considered that the last named course was the one which best conformed with the intent of the National Energy Board Act and the proper discharge of the Board's responsibilities thereunder.

The Board decided that where a choice had to be made between licensing exports by a project wholly-oriented

to export and a project which serves Canadian and export customers, if all other factors were equal the choice would have to be in favour of the project serving Canadian as well as export customers. The Board reasoned that exporting gas should be a profitable activity which, when undertaken by transmission systems serving Canadian customers should make available to such customers a share in the economies of scale and such benefits as may arise from the contribution of exports to the financial health of the transmission system.

The Board was persuaded that it should issue export licences for much shorter terms than the 25-year maximum provided by the statute. The Board felt that the experience in the past few years of changes in costs and prices made it difficult to be certain that export prices which appeared just and reasonable at this time would remain so 20 or 25 years hence. The Board was also concerned that the trend towards accelerated rates of take would shorten the life of the remaining reserves and reduce the protection available to meet Canadian requirements.

For these reasons and for others given in detail in the Board's Report of August 1970, the Board recommended

and the Government approved the issuance of the following export licences:

<u>Company</u>	<u>Quantity(Tcf)</u>	<u>Years</u>
Alberta and Southern	1.0	15
Canadian-Montana	0.1	15
Trans-Canada	1.9	20
Westcoast	3.3	1+18 (1)
Total:	6.3	

The Board denied, for reasons set forth in its Report of August 1970, the application by Consolidated Pipe Line Company to construct a new pipe line through Saskatchewan and also denied applications by Consolidated Natural Gas Limited to export Canadian gas to the United States and to import and export Montana gas for transmission through Saskatchewan to North Dakota. The two Consolidated companies filed revised applications with the Board on 29 October 1970 and action on these applications was pending at the year's end.

Further, the combined hearing provided an opportune occasion for the Board to obtain an expression of views in respect of the criteria and practices by which it had in the past dealt with applications for gas export licences

Note (1)

See footnote, page 7.

and in the course of considering the actual applications, it reached conclusions on a number of matters on which advice was tendered.

The second issue concerned the licensing of certain oil imports in pursuance of oil policy objectives established in 1961.

National Oil Policy is designed to foster the development of Canada's oil resources while preserving a balance between regional and sectional interests. In Ontario, the policy requires that markets in the central and western part of the province should be substantially supplied with products derived from indigenous crude. This program was predicated on the voluntary cooperation of industry. The Board is responsible for its administration.

During the 1960's, substantial success was achieved by the oil industry in conforming to the policy. In the spring of 1970, however, its objectives were jeopardized by the risk of increasing movements of foreign-origin motor gasoline into central and western Ontario. This led in May 1970 to the proclamation of Section 87 of the National Energy Board Act to facilitate enforcement of the oil policy.

This proclamation extended to oil the application of Part VI of the National Energy Board Act, which deals with exports and imports. Simultaneously, the Board's Part VI

Regulations were amended to limit the application to imports of motor gasoline into Canada east of the province of Manitoba. The Board was authorized to licence imports of motor gasoline into Regions I and II (the Atlantic Provinces, Quebec and eastern Ontario) and Region III (central and western Ontario) and to condition such licences to prohibit the transfer of motor gasoline from Regions I and II to Region III without the Board's consent.

Following a public hearing the Board, in July 1970, denied an application of Caloil Inc. to import motor gasoline. This Company then instituted an action in the Exchequer Court for a declaration that the Regulations were unconstitutional and invalid. In a judgement of 1 August 1970, the President of the Exchequer Court declared that the legislative scheme consisting of Part VI of the National Energy Board Act and of Section 20 of the National Energy Board Part VI Regulations was unconstitutional because it purported to restrict the marketing of oil and oil products within a province and was not confined to the regulation of imported oil and oil products.

On 12 August 1970 the National Energy Board Part VI Regulations were amended to eliminate the features

found by the judgement of the Court to be invalid. Under the amended Regulations, which relate to imports of motor gasoline to all parts of Canada, an applicant is required to specify the area of Canada in which the motor gasoline to be imported will be consumed and the Board is charged with determining whether such an importation will be consistent with the development and utilization of Canadian indigenous oil resources.

These amended Regulations were contested by Caloil Inc. in the Exchequer Court. The Court upheld the new Regulations, stating that as the federal authority has the right to prohibit entry of certain products into the country, it also had the right to specify the quantity, time and area of consumption of the imported products, which include oil and oil products, from the point of purchase to place of consumption.

Caloil Inc. then appealed to the Supreme Court of Canada. The case was heard in early November 1970 and, while written reasons for the judgement had not been disclosed by the end of 1970, the Chief Justice stated orally at the conclusion of presentation of argument that the Court found the disputed Regulations constitutional and valid and that the Court adopted most of the reasoning of the lower Court.

EXPLORATION AND DEVELOPMENT - OIL AND GAS

Since its inception in 1959, the Board has maintained a surveillance of exploratory activity not only in Canada but in other petroliferous areas in the world. This has involved the evaluation of discoveries as they have occurred in the context of their reservoir capacity and significance for reserves additions.

A map of Canada and Alaska appearing on the following page highlights 1970 developments from which it will be readily seen that the "frontier" areas dominate, with the main focus being on the Arctic Islands. The east coast is also the scene of accelerated drilling activity.

No significant oil discovery has been made in Alberta since 1966. The 1967 discovery of a large Devonian reef containing sour, wet gas at Strachan in Western Alberta, (item 4 on the map) generated an intensive play in this deeper part of the basin. Exploration for similar features continued throughout 1970, but at a slower pace due in part to the sharp decline in sulphur prices. Drilling continued in the immediately adjacent foothills belt (item 3 on the map) in a search for reservoirs in thrust, faulted blocks of Mississippian carbonates.

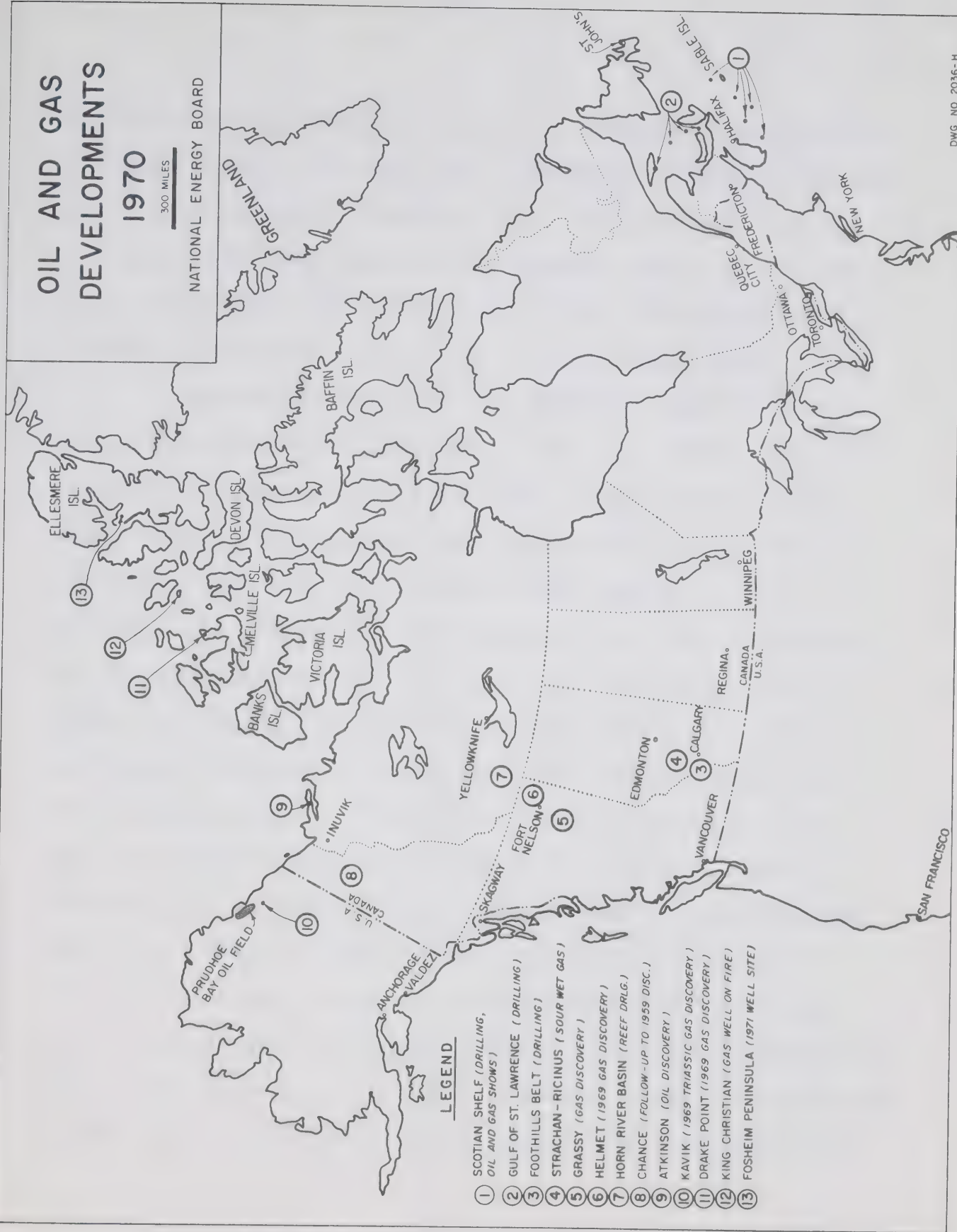
Although no data have been released, an apparently significant foothills gas discovery was made at Grassy in

OIL AND GAS DEVELOPMENTS

1970

300 MILES

NATIONAL ENERGY BOARD



LEGEND

- ① SCOTIAN SHELF (DRILLING, OIL AND GAS SHOWS)
- ② GULF OF ST. LAWRENCE (DRILLING)
- ③ FOOTHILLS BELT (DRILLING)
- ④ STRATHCONA-RICINUS (SOUR WET GAS)
- ⑤ GRASSY (GAS DISCOVERY)
- ⑥ HELMET (1969 GAS DISCOVERY)
- ⑦ HORN RIVER BASIN (REEF DRUG.)
- ⑧ CHANCE (FOLLOW-UP TO 1959 DISC.)
- ⑨ ATKINSON (OIL DISCOVERY)
- ⑩ KAVIK (1969 TRIASSIC GAS DISCOVERY)
- ⑪ DRAKE POINT (1969 GAS DISCOVERY)
- ⑫ KING CHRISTIAN (GAS WELL ON FIRE)
- ⑬ FOSHEIM PENINSULA (1971 WELL SITE)

Northeast British Columbia (item 5 on the map), approximately 110 miles north of the Westcoast Transmission Company Limited pipe line junction at Chetwynd, B.C. Helmet (item 6 on the map) was a 1969 gas discovery in Devonian reef, but information concerning over 100 feet of net pay with reportedly excellent deliverability was not released until 1970.

Neither Saskatchewan nor Manitoba reported any significant discoveries in 1970. There was however, considerable shallow heavy oil activity in the general Lloydminster area. Very shallow gas development took place in the Beacon Hill area of Northwest Saskatchewan, a 1969 discovery, in preparation for marketing into the Saskatchewan Power Corporation system. Although the Horn River Basin (item 7 on the map) is in the Northwest Territories, it is geologically related to the Rainbow-Zama Devonian reef play of Northwest Alberta. The 1970 drilling campaign in that area was unsuccessful. As a result of a farmout, Chance, a 1959 oil and gas Pennsylvanian sand discovery (item 8 on the map) in the Yukon Territory will have further evaluation.

The main interest in the Mackenzie Delta and the Arctic Islands was, of course, sparked by the 1968 Prudhoe Bay oil and gas discovery. In 1970, interest was greatly sharpened by two events, firstly an oil discovery in a Cretaceous sand

stratigraphic trap at Atkinson (item 9 on the map) near the shore of Beaufort Sea, 110 miles northeast of Inuvik and secondly, by a second gas discovery in the Arctic on King Christian Island (item 12 on the map).

The King Christian find accidentally blew out and caught fire while drilling at a depth of about 2,000 feet in sands of Triassic age. At the end of the year, the well was still burning and a relief well was being drilled in an effort to control it. The fire has since been killed. The Drake Point gas discovery of 1969 (item 11 on the map), which had also blown out of control and caught fire, was killed and capped in the fall of 1970.

Wildcat activity in the Arctic Archipelago plus a proliferation of land deals also furnished direct evidence of increased interest. The resulting exploration and drilling commitments should maintain a strong pace for several more years. A wildcat location on Fosheim Penninsula, Ellesmere Island (item 13 on the map) will be drilled in 1971 on one of the farthest north and most remote geological structures in the world.

North Slope drilling in Alaska was restricted in 1970 to a few wildcats and some development completions at Prudhoe Bay. Pending resolution of the field unitization,

little definitive subsurface data had been publicly released to the end of 1970. A 1969 gas discovery at Kavik in Alaska (item 10 on the map) tested 54,000,000 cubic feet per day from sands of Triassic age.

The Scotian Shelf (item 1 on the map) was the scene of continuous drilling by two semi-submersible rigs throughout the year, in sands and shales of Cretaceous age. Shows of oil and gas were reported. After several years of geophysical reconnaissance, exploratory drilling commenced in the Gulf of St. Lawrence (item 2 on the map). Two holes were drilled "on-shore" and two in Northumberland Strait. The target horizon in three cases was the thick Mississippian sequence. No success was reported from any of the four wildcats.

The value of western Canadian production of oil and gas rose to a new high of some \$1,600 million in 1970 as compared to 1969's value of \$1,446 million.

Expenditures, both capital and operating rose from \$1,365 million in 1969 to an estimated \$1,420 million in 1970. Gas processing plant construction accounted for a large portion of the 1970 budget. Bonuses paid the Crown for mineral permits and leases declined mainly because no new "plays" had emerged and the Crown parcels still available for bidding in existing areas of interest had almost disappeared.

OIL AND GAS - PRODUCTION AND
MARKETS

Oil

Record levels of activity were again achieved by the oil industry in 1970. Production of crude oil and natural gas liquids grew by 11 per cent over 1969 to 1,452,000 barrels daily. Events at home and abroad brought oil matters frequently into the news.

The year opened with accelerating sales of western oil in export markets, a trend that was arrested in March by the imposition of mandatory import controls on Canadian refinery feedstock movements into the United States east of the Rockies ("Districts I-IV"). This disappointment marked the end in these markets of the 'exemption' from such control which Canadian oil shipped overland had enjoyed almost since the beginning of the United States Oil Import Control Program.

It signified an end also to the Board's arduous and, latterly, impossible task of administering arrangements relating to oil exports on a voluntary basis, which Canada had entered into with the United States by an exchange of Notes in September 1967. The immediate consequence for the industry was a sharp fall in the rate of export, although the new circumstances still indicated the likelihood of some growth over the level achieved in 1969. In the event, subsequent

relaxation of United States controls affecting Canadian exports resulted in an annual export rate of 665,290 barrels daily of crude oil and equivalent, an increase of nearly 20 per cent over the previous year.

The refinery destination of Canadian exports of crude oil and equivalent in 1969 and 1970 is shown in Appendix IX.

Even while this outcome was developing however, there remained preoccupations within the oil industry as to its longer-term export market prospects. The industry's exploration and development process is characterized by long lead-times, yet for the past decade the export market outlook has not been predictable on a reasonably firm basis for more than a twelve-month forward period. In the Board's judgment this circumstance has hampered the industry's planning and worked against the long-term interests of users of Canadian oil. Accordingly, in discussions with United States officials which continued during the year, the Board placed emphasis on this aspect of Canadian-United States oil relations.

Continued closure of the Suez Canal, with accompanying effects on freight rates, played its part in influencing demand for Canadian oil in United States markets. World tanker supply was already fully deployed when, at mid-year, tonnage requirements

rose sharply as a result of curtailment of "short haul" crude supply in the Mediterranean by actions of the Libyan and Syrian governments. Shipping costs increased sharply by reason of the far longer voyages entailed in restoring world crude oil supply from Persian Gulf sources and the larger transportation capacity required. In these circumstances, the Board intensified surveillance of these market factors, which bear both on the costs of imported oil and on demand for Canadian export oil.

Almost simultaneously, fears began to be expressed that reductions in the flexibility of world oil supply would impair the ability of suppliers to meet peak winter demands for fuel oils. A tight supply situation for domestic and heavy fuel oils became apparent. The related rise in Caribbean prices coupled with high tanker rates in the spot market, meant that marginal supplies of fuel oil could be shipped to eastern Canadian markets only at much higher costs than had prevailed in recent years. The Board maintained appropriate contact with the suppliers of imported fuels regarding the levels of inventories being planned for winter needs and the programming of alternative supply arrangements.

Total Canadian imports of crude oil and petroleum products as reported to the Board, are tabulated in Appendix X.

The experience of 1970 served to re-emphasize that Canadian oil has never been isolated from events in the main-

streams of international oil supply and that, while the eastern Canadian market has enjoyed the lower costs of foreign oil, its supply and price remain dependent upon circumstances over which Canada can exert little or no control. They also demonstrate the continuing inter-relationships of oil policy in domestic and export markets.

In earlier disruptions of Middle East oil supplies or supply routes, Canada has been able to draw on alternate sources for imported oil, notably Venezuela and the United States, while at the same time increasing its own oil exports to United States west coast and mid-west markets. In the circumstances of 1970, a somewhat similar supply shift occurred. However, neither the United States nor Venezuela have immediately available the same magnitude of excess producing capacity. These changing conditions were reflected in the communique issued following the November meeting of the Joint Canada/United States Committee on Trade and Economic Affairs, in which reference was made to the need to review contingency planning against disruption of overseas oil supply to the east coast of North America. This is an area of activity with which the Board has been involved almost since its inception.

In this light it is appropriate to recall that, had supply economics alone dictated the source of crude oil for

Ontario refiners, the Ontario market would not have been substantially supplied with indigenous oil which it has been under established oil policy. As had in the Board's view become increasingly desirable over the last few years, the Government in May 1970 took steps to restrain by mandatory import control the flow of foreign-origin motor gasoline into Ontario markets.

Appendix XI tabulates imports and net transfers of petroleum products from the east into western and central Ontario markets over the period 1961-1970.

At the end of the year, the Board was actively engaged in determining what plans were being made by the companies concerned for their 1971 Ontario operations. The Board is appraising the adequacy of capacity at Ontario refineries for the manufacture of the various product groups, and will consider whether further recommendations to Government appear desirable. Preliminary results confirm that ample potential exists for the manufacture of motor gasoline.

The Board is highly conscious of the complexity of these matters but also increasingly aware that in today's circumstances it is not easy to differentiate in approaches applied to motor gasoline and middle distillates under the oil policy. As for residual fuel oil, the Board has hitherto applied no pressures for the reduction of imports or westward

transfers of heavy fuel into Ontario markets: it believes there remain grounds on which this product should continue to receive special treatment under the policy.

The Board continued to discuss with refiners the need for adequate capacity to meet expanding product demand in Ontario. In this connection, while it notes allegations that refining in the Province is a highly profitable undertaking, it is the Board's judgment that the extreme reluctance of the industries to construct new capacity in Ontario is due to the marginal nature of returns that have prevailed.

In the light of actions taken or envisaged by overseas producing countries towards the year-end, it became apparent that corresponding increases in world oil prices will in 1971 be highly likely to extend to all of Canada's oil imports. The Board continued its interest in the medium-term prospects for refinery capacity extension, with particular emphasis on the degree of dependence on foreign oil supply that is likely to persist. Closer attention has been given to the matter of oil supply security in the circumstances which have obtained since 1967 and preparations were in progress in December for further study of this matter.

Gas

The Board has maintained its continuing study of the gas reserves in Canada. Existing reserves and additions are

studied to provide current reserve information which, together with the current requirements, provides the information to calculate current surplus. Reserve estimates of other governmental agencies and industry are given consideration by the Board in establishing Canadian reserves.

The volume of natural gas marketed in Canada increased by 9 per cent during 1970, with the greatest gain occurring, as in other recent years, in Ontario. During the year the growing endeavour to control industrial air pollution undoubtedly favoured the use of natural gas in new installations and in conversion of existing installations from coal or oil. The Hydro-Electric Power Commission of Ontario informed the Board during the year, that, commencing in 1971, its Hearn Plant at Toronto will use between 49 and 61 billion cubic feet of gas per year for electricity generation.

Export of natural gas to the United States increased by some 15 per cent during 1970. The present practically unlimited export market for Canadian gas, as a reflection of the energy shortage in the United States, was evidenced by further applications from Alberta and Southern Gas Co. Ltd., and Consolidated Natural Gas Limited for licences to export approximately 3.6 Tcf during the terms of the proposed licences. These 3.6 Tcf are in addition to the quantity of gas for which licences were issued during the year.

PIPE LINE CONSTRUCTION AND OPERATION

Major pipe line construction during 1970 included facilities installed by Interprovincial Pipe Line Company and Trans-Canada Pipe Lines Limited. Interprovincial Pipe Line Company added pumping facilities to its pipe line system in Alberta, Saskatchewan, Manitoba and Ontario as well as to that part of its system owned and operated in the United States by its subsidiary, Lakehead Pipe Line Company, Inc. Interprovincial also constructed approximately 20 miles of pipe line looping in Ontario. These additional facilities were required to meet the anticipated demand in 1971 for crude oil from Western Canada in the markets served by Interprovincial and Lakehead system in Canada and the United States.

Trans-Canada continued to construct additional stages of its "Third" line of pipe, a 36-inch diameter pipe line from Empress, Alberta, to Winnipeg, Manitoba, as well as installing additional compression facilities along its pipe line system. The Company also completed its "Second" line of pipe, a 36-inch diameter pipe line, between Winnipeg and Emerson, Manitoba. These facilities were required to meet the increased demands of customers in Eastern Canada for gas to be transmitted through the United States by Great Lakes Gas Transmission Company and to transmit increased exports to United States markets.

The design, operation, maintenance and safety of oil pipe lines are of prime concern to the Board and in this respect failures and malfunctions are reported and investigated to determine the causes of failure and to take steps to prevent recurrence of similar failures in the future. This includes the recommendation of amendments to the Canadian Pipe Line Standards. A summary list of incidents which occurred during 1970 is to be found at Appendix XII.

The Board is continuing to develop safety regulations for oil pipe lines. These regulations are intended to provide safety requirements additional to the existing CSA Standards Z183-1967.

During the year the Board considered applications and issued certificates or orders authorizing the construction of the following oil pipe line facilities in addition to the previously mentioned additions to the capacity of the Inter-provincial pipe line system: construction of a pipe line by Cochin Pipe Lines Ltd., from Empress, Alberta to Kerrobert, Saskatchewan, for transporting liquid hydrocarbons recovered from natural gas; installation of additional pumping units in the Trans Mountain Oil Pipe Line Company's system; relocation of a pumping unit on the Trans-Northern Pipe Line Company system; manifold changes on the Montreal Pipe Line Company Limited

system, and installation of additional tankage in the Edmonton terminal of the Interprovincial system.

Board staff carried out numerous field inspections in connection with the installation and testing of new gas pipe line facilities including operation of gas compressors and testing of new lines.

A hearing was held at North Bay, Ontario, with regard to Trans-Canada's proposal to replace three sections of its pipe line system which it operates in an increasingly developing urban area. This involved an extensive investigation by the Board to determine whether a complete relocation of the pipe line outside the developing areas of North Bay was necessary or, alternatively, replacement of pipe within the urban boundaries of North Bay with pipe having increased wall thickness. By decision of the Board on this matter, issued in December 1970, the Company was authorized to install new sections of pipe line within the boundaries of that City to replace the present sections. The Board was particularly concerned about the aspect of public safety in regard to this proposed construction. The Board noted that the specifications which Trans-Canada will apply to the new replacement sections of pipe are more restrictive than those required by the relevant standards adopted by the Canadian Standards Association.

The Board's staff investigated complaints of possible air pollution in the Fort Nelson, British Columbia, area adjacent to Westcoast Transmission Company Limited's gas processing plant. As a result of these studies the Company has been required to monitor air quality at this location and report to the Board. The Board will continue to keep under observation the effects upon air quality of proposed additions to the plant and, if necessary, will take measures to protect air quality.

Westcoast Transmission Company Limited received approval for additional looping and compression facilities on its main pipe line in British Columbia and for a new 24-inch diameter pipe line from Fort Nelson to the Beaver River gas fields near the British Columbia - Northwest Territories boundary. The Company's Fort Nelson gas processing plant will be enlarged by construction of two additional processing units or "trains" to meet increasing demand for gas.

ICG Transmission Limited constructed a pipe line from a connection with Trans-Canada's system in Manitoba through part of Minnesota to Rainy River, Ontario, and thence to Fort Frances, Ontario, and International Falls, Minnesota. This pipe line will be used to transmit gas to Canadian consumers in the Rainy River - Fort Frances area and to export gas to International Falls and several small communities in Minnesota.

Alberta Natural Gas Company completed construction of three sections of looping and is at present constructing additional compression facilities, all in the Province of British Columbia.

In 1970 the Board issued a total of 1,032 certificates, licences, permits and orders. These included 9 certificates of public convenience and necessity, 30 licences for the export of gas and power, 532 orders relating to the crossing of and by pipe lines with regard to other utilities, highways and railways, 28 orders approving plans, profiles and books of reference, 42 orders approving plans for compressor and pump stations, 54 orders granting leave to open oil and gas pipe line facilities, as well as 9 orders authorizing the operation of existing pipe line facilities at operating pressures higher than those previously permitted. Generally speaking, these orders relate to the protection of the public and pipe line facilities and to safety in pipe line operation.

In addition, the Board issued 81 licences authorizing the importation of motor gasoline and motor gasoline blending components under Part VI of the Regulations of the Act as amended.

Not only did the total number of orders issued represent a numerical increase of 26 per cent over the year 1969, but there was a greater complexity and variety to the

applications handled by the Board during the past year. The annual totals of certificates, licences, orders and permits which the Board has issued since its inception are shown in Appendix XVI.

The capital expenditures relating to 1970 construction of pipe lines under the Board's jurisdiction are summarized in Appendices I and II.

There were no serious problems between pipe line companies and landowners reported to the Board during 1970, and it is believed that this fact reflects the improved public relations between the pipe line industry and landowners.

ELECTRIC POWER

During the year, the Board held public hearings on applications by Canadian Niagara Power Company, Limited and Fraser Companies, Limited for licences to export electric power. As a result of the former hearing the Board issued two licences authorizing Canadian Niagara to export annually to Niagara Mohawk Power Corporation a maximum of approximately 307 million kilowatthours of firm power and a maximum of approximately 100 million kilowatthours of interruptible energy. Both licences expire 31 March 1975. Two licences were also issued to Fraser Companies for the export of firm and interruptible power at a point on the international boundary near Edmundston, New Brunswick, to its wholly-owned subsidiary, Fraser Papers Limited, in Madawaska, Maine.

A public hearing was held on an application by British Columbia Hydro and Power Authority for a certificate for a proposed new 230,000 volt international power line. The Board's decision on this application was pending at the end of the year.

The Board also commenced a public hearing in Fort Frances, Ontario, on an application by the Ontario-Minnesota Pulp & Paper Company Limited for licences to export electric power and for a certificate for a new international line. This hearing was adjourned sine die on 19 November 1970 to enable the Applicant to file additional data.

During the year the Board issued 14 orders for the export of electric power under Section 6A of Part VI of the National Energy Board Regulations.

The new licences and orders issued during 1970 for the export of electric power are listed in Appendix XIII.

During the year, the Board completed its studies for the Atlantic Tidal Power Programming Board in connection with the marketing and transmission of tidal power. The Board also cooperated with other departments in studies on the environmental effects of electric power production.

At the request of the Department of Energy, Mines and Resources, the Board reviewed a marketing study on the sale of electric power from a possible international power development on the Yukon. It also reviewed the possible effects of closer cooperation among the Maritime Provinces on the electric power utilities in those provinces.

The Board continued its participation on the Nelson River Review Committee.

Most electric power utilities in the United States and Canada are now interconnected and coordinate their activities to improve reliability of service through various regional councils and the United States National Electric Reliability Council. The Board has been granted observer status at meetings of the National Electric Reliability Council.

Meetings were held with various electric power utilities to discuss fuel problems arising from market changes brought about by fuel shortages in the United States and more stringent environmental criteria.

FINANCIAL MATTERS

The most significant developments during 1970 from the point of view of the Board's activities in financial matters related to the combined gas export hearing previously referred to in this report, particularly with respect to the determination of the justness and reasonableness of the proposed export prices. In addition, Trans-Canada Pipe Lines Limited applied to the Board for permission to increase its rates for the transmission of gas across Canada by approximately \$30,000,000 based on 1970 as the "test" year. This application is the first to be received by the Board under Part IV of the National Energy Board Act since the implementation thereof in late 1969. Part IV deals, in part, with the powers of the Board with respect to the establishment of just and reasonable tolls.

As is its general policy, the Board continued to review the financial affairs, accounting practices, rates, tolls and tariffs of pipe line companies under its jurisdiction. In this regard the Board's staff also completed a preliminary study on the rates of return of certain oil pipe line companies which are subject to the jurisdiction of the Board. As mentioned earlier in this report an amendment to the Board's Part VI Regulations was introduced during the year governing the surveillance of the border price of natural

gas exports. In compliance with this requirement, the Board is developing surveillance procedures compatible with the additional responsibilities that are involved.

The Board continued to conduct regular examinations of the accounts and records of pipe line companies under its jurisdiction. In this regard, the accounts of six major companies with total assets of 1.5 billion dollars and total annual revenues of 400 million dollars were examined in 1970. Such information has proved to be important in the development and administration of effective accounting and rate regulatory policies.

With the implementation of Part IV of the National Energy Board Act much of the Board's attention was directed to rates matters in 1970. A firm of chartered accountants experienced in rate regulatory work, working in close liaison with the Board's staff, completed a complex rate study on Westcoast Transmission Company Limited.

Another firm of chartered accountants was engaged to work in conjunction with Board staff on the application by Trans-Canada Pipe Lines Limited for rate base determination and for an increase in rates. A major public hearing on this rate application, which was originally scheduled to commence on 6 October 1970 but which had to be postponed pending the appointment of additional Board members, was subsequently set down for hearing starting 9 February 1971.

During 1970 the Board reviewed and analyzed numerous agreements and contracts covering the sale, purchase and transportation of natural gas by pipe line companies under its jurisdiction. In addition, statistical information concerning volumes of throughput, rate base, rates of return and cost of service of companies under the Board's jurisdiction is accumulated on a regular basis. Prescribed quarterly and annual financial reports are also scrutinized for significant developments in the financial affairs of jurisdictional gas and oil pipe line companies. Where appropriate, the Board requested special reports from companies concerning matters such as cash flow, long range budget forecasts, construction costs for completed projects, financing arrangements and depreciation policies.

The Board continued to maintain close liaison with various sectors of the national and international financial communities and the knowledge gained from such relationships assisted the Board in its continuing appraisal of the financial status of the energy industry in Canada.

SUPPORTING ENERGY STUDIES

As a follow-up to the long term energy forecast published in 1969, under the title "Energy Supply and Demand in Canada and Export Demand for Canadian Energy, 1966 to 1990", the Board's staff continued to study energy trends. One of the studies involved the potential movement of crude oil to the eastern part of the country. The future potential productive capacity of the various "frontier" areas of Canada was also considered in this review.

In support of the Canadian Government guidelines announced in August 1970, for construction and operation of northern oil and gas pipe lines, the Board's staff has been actively engaged in the development of research projects related to such pipe lines and marketing of the possible northern hydrocarbon production. In cooperation with other federal departments consideration is being given to such matters as environmental protection, pollution control, participation in training and employment of northern residents, and the proposed construction of an oil and a gas pipe line with a restricted location through the Canadian North.

Numerous studies were undertaken on alternative methods of transporting oil from the Canadian Arctic to assess the impact of northern oil on existing markets. Technical

feasibility studies and investigations were conducted in anticipation of regulating the construction of oil pipe lines in permafrost areas. Special computer programs for assessing heat loss from pipe lines and the effects of heat penetration into the ground are being developed and from these programs design and safety regulations for Arctic pipe lines may be established.

The Board has developed two gas pipe line computer programs: one a simulation program which determines the maximum capability of a gas pipe line; and the other, a design program which determines the facilities required to provide minimum cost of service for transportation of given quantities of gas between given points. Extensive use has been made of these two programs in the last year in analyzing applications to the Board for certificates and export licences by determining the reliability of gas pipe line systems and by ascertaining that the designs proposed are suitable. In addition, cost of service studies have been conducted as part of the process of determining the adequacy of border prices.

Several computer programs were developed for calculating throughputs, pump power requirements and the maximum capacity for complex pipe line systems. The use of such programs results in the detection of the restrictive sections of a pipe line system as throughput rates are increased.

The Dominion Bureau of Statistics input-output model was used for calculating impacts of various construction projects and energy export applications on the economy. Work to update the model using latest statistics is continuing. Recommendations concerning energy matters were also made to the Bureau in connection with the preparation of the 1971 census.

The Board has provided assistance to the Canadian Standards Association in the formulation of Canadian Standards for line pipe and in particular for high test line pipe for large diameter oil and gas pipe lines.

The Board cooperated with the Department of Energy, Mines and Resources in completing a revision of a map showing the principal oil pipe lines in Canada. A similar map showing the principal gas pipe lines in Canada is under revision.

Technical developments in the electric power field and power developments in Canada and relevant areas were kept under review. Liaison was maintained with the Federal Power Commission of the United States and with electric power utilities and manufacturers in Canada.

A continuing study was undertaken in relation to the security of Canada's imported oil supplies which might be subject to interruptions in times of international crisis. The study benefited from the close collaboration of the Canadian petroleum industry in the supply of data required in the analysis and from

the assistance of the Department of External Affairs in assessing Middle East political affairs. The Board intends to keep the matter under continuous surveillance as required by the nature of the problem.

As in past years, the Board continued to take a leading role, along with other federal departments, in oil marketing discussions with the United States. A series of meetings was held which resulted in the statements on energy matters contained in the joint communique issued by the Joint Cabinet Committee meeting held in Ottawa in November.

At the request of the Department of External Affairs the Board continued to serve as the focal point for Canada's contribution to the energy activities of the Organization for Economic Cooperation and Development. This work involves active participation in the Energy and Oil Committees of that Organization. As circumstances warrant, these Committees participate in cooperative exercises involving other activities of this international body. One of the areas of such continuing concern is related to the study of environmental problems.

The Board, as in the past, represented Canada in connection with North Atlantic Treaty Organization matters relative to energy policy.

In the Fall of 1969 York University initiated a postgraduate course in Energy Economics. This new program,

mentioned in previous Annual Reports, was developed by the University in cooperation with the Board, the Public Service Commission and the Department of Energy, Mines and Resources and is intended to provide specialized energy-oriented economists for government and industry. The Board continues to maintain contact with this program and it is hoped the Board and other sectors of the public service will shortly commence to reap the benefits from this endeavour.

To further the development of energy statistics the Board continued to cooperate with the Dominion Bureau of Statistics and other federal departments and agencies. In addition, liaison was maintained with the appropriate representatives of provincial bodies and the energy industries.

APPENDIX I

NEW CERTIFICATES OF PUBLIC CONVENIENCE AND NECESSITY PURSUANT TO SECTION 44 ISSUED DURING 1970

NATURAL GAS PIPE LINES

<u>APPLICANT</u>	<u>FACILITIES</u>	<u>ESTIMATED COST</u>	<u>HEARD</u>	<u>ISSUED</u>	<u>CERTIFICATE NO.</u>
1. Trans-Canada Pipe Lines Limited	<ul style="list-style-type: none"> i) Approximately 159 miles of 36- inch) diameter pipe line in the Provinces) of Saskatchewan, Manitoba and) Ontario.) ii) A new compressor station in the) Province of Ontario.) iii) Additional compression facilities) and other works connected there-) with at eight locations in the) Provinces of Saskatchewan and) Manitoba.) iv) Improvements to its existing pipe) line system by means of hydro-) static testing and/or sand-) blasting in the Province of) Manitoba.) 	<ul style="list-style-type: none"> \$51,474,300.00 	<ul style="list-style-type: none"> commencing) 25 November,) 1969) 	<ul style="list-style-type: none"> 26 June,) 1970) 	<ul style="list-style-type: none"> GC-37
2. ICG Transmission Limited	<ul style="list-style-type: none"> i) Approximately 114 miles of 12.750-) inch diameter pipe line in the) Provinces of Manitoba and Ontario.) ii) Certain metering facilities and) certain pressure regulating) facilities in the Provinces of) Manitoba and Ontario.) 	<ul style="list-style-type: none"> \$ 4,290,000.00 	<ul style="list-style-type: none"> 26 May,) 1970) 	<ul style="list-style-type: none"> 4 August,) 1970) 	<ul style="list-style-type: none"> GC-38

APPENDIX I (cont'd)

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NEW CERTIFICATES OF PUBLIC CONVENIENCE AND NECESSITY PURSUANT TO SECTION 44 ISSUED DURING 1970

NATURAL GAS PIPE LINES (cont'd)

<u>APPLICANT</u>	<u>FACILITIES</u>	<u>ESTIMATED COST</u>	<u>HEARD</u>	<u>ISSUED</u>	<u>CERTIFICATE NO.</u>
3. Cochin Pipe Lines Ltd.	<ul style="list-style-type: none"> i) Approximately 94 miles of 7.625-inch diameter pipe line in the Provinces of Alberta and Saskatchewan. ii) One pump station and terminal in the Province of Alberta. iii) Certain storage facilities in the Province of Saskatchewan. 	\$3,090,300.00	5 May, 1970	20 August, 1970	GC-39
4. Alberta Natural Gas Company	<ul style="list-style-type: none"> i) Additional compression facilities and other works connected therewith at three locations in the Province of British Columbia. ii) A new meter station in the Province of British Columbia. 	\$8,012,000.00	commencing 25 November, 1969	29 September, 1970	GC-40
5. Westcoast Transmission Company Limited	i) Approximately 80.6 miles of 36-inch diameter pipe line in the Province of British Columbia.				

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APPENDIX I (cont'd)

page 3

NEW CERTIFICATES OF PUBLIC CONVENIENCE AND NECESSITY PURSUANT TO SECTION 44 ISSUED DURING 1970

NATURAL GAS PIPE LINES (cont'd)

<u>APPLICANT</u>	<u>FACILITIES</u>	<u>ESTIMATED COST</u>	<u>HEARD</u>	<u>ISSUED</u>	<u>CERTIFICATE NO.</u>
6. Westcoast Transmission Company Limited	ii) A new compressor station in the Province of British Columbia.				
	iii) Additional compression facilities and other works connected therewith at one location in the Province of British Columbia.	\$29,254,000.00	commencing 25 November, 1969	29 September, 1970	GC-41
	i) 154 miles of 36-inch diameter pipe line in the Province of British Columbia.				
	ii) Approximately 110 miles of 24-inch diameter pipe line in Northern British Columbia.				
	iii) A new compressor station in the Province of British Columbia.	\$104,510,000.00	commencing 25 November, 1969	29 September, 1970	GC-42 (as amended)
	iv) Additional compression facilities and other works connected therewith at one location in the Province of British Columbia.				

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APPENDIX I (cont'd)

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NEW CERTIFICATES OF PUBLIC CONVENIENCE AND NECESSITY PURSUANT TO SECTION 44 ISSUED DURING 1970

NATURAL GAS PIPE LINES (cont'd)

<u>APPLICANT</u>	<u>FACILITIES</u>	<u>ESTIMATED COST</u>	<u>HEARD</u>	<u>ISSUED</u>	<u>CERTIFICATE NO.</u>
7. Trans-Canada Pipe Lines Limited	v) Spare compressor unit parts.)				
)				
	vi) Additional gas treating facilities)				
	in the Province of British Columbia.)				
	vii) A new 'elemental sulphur recovery)				
	plant' in the Province of British)				
	Columbia.)				
	viii) A new meter station in the Province)				
	of British Columbia.)				
	ix) Additional metering facilities at)				
	one location in the Province of)				
	British Columbia.)				
	i) Approximately 49.2 miles of 24-inch)				
	diameter pipe line in the Province)				
	of Ontario.)				
	ii) Improvements to its existing pipe)				
	line system by means of hydrostatic)				
	testing and sandblasting in the)				
	Province of Ontario.)				
		\$7,987,700.00	commencing 25 November, 1969	29 September, 1970	GC-43

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APPENDIX I (cont'd)

NEW CERTIFICATES OF PUBLIC CONVENIENCE AND NECESSITY PURSUANT TO SECTION 44 ISSUED DURING 1970

page 5

INTERNATIONAL POWER LINE

<u>APPLICANT</u>	<u>FACILITIES</u>	<u>ESTIMATED COST</u>	<u>HEARD</u>	<u>ISSUED</u>	<u>CERTIFICATE NO.</u>
1. The New Brunswick Electric Power Commission	One international power line to be designated the Keswick-Orrington line and to extend approximately 50 miles from Keswick Substation to a point on the international boundary near Fostererville, New Brunswick. This line would be built for 345 kv, three-phase operation, using two-conductor bundles of 795,000 circular mil ACSR conductors supported on single-circuit steel towers.	\$5,350,000	21 October, 1969	3 March, 1970	EC-III-8
2. The Manitoba Hydro- Electric Board	One international power line to be designated the La Verendrye-Prairie line and to extend approximately 60 miles from La Verendrye Substation to a point on the international boundary near Emerson, Manitoba. This single-circuit line would be built for 230 kv, three-phase operation, using 954,000 circular mil ACSR conductors.	\$2,031,650	4 November, 1969	10 March, 1970	EC-III-9

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APPENDIX I (cont'd)

APPENDIX II
EXEMPTION ORDERS PURSUANT TO SECTION 49
ISSUED DURING 1970
CLASS "B" CONSTRUCTION

(This is construction which, at the discretion of the Board, may be the subject of a specific exemption order pursuant to Section 49).

NATURAL GAS PIPE LINES

- (1) Alberta Natural Gas Company, new meter station, to be known as 'Sparwood Sales Tap', and other works connected therewith, in the Province of British Columbia, estimated cost \$8,000.00, Order No. XG-1-70, dated 2 January, 1970.

(Note: Orders No. XG-2-70 to No. XG-12-70, inclusive are not Orders for new pipe line facilities requiring capital expenditures).
- (2) Westcoast Transmission Company Limited, three new compressor stations and other works connected therewith, to be known as 'Nig Creek Station (Booster Station No. 9)', 'Stoddart Station (Booster Station No. 10)' and 'Rigel Station (Booster Station No. 11)', respectively, as well as approximately 2.4 miles of 6.625-inch OD pipe line in the 'Nig Creek Area' and other works connected therewith, all in the Province of British Columbia, estimated cost \$4,593,200.00, Order No. XG-13-70, dated 28 May, 1970, as amended.
- (3) Alberta Natural Gas Company, approximately 3.3 miles of 36-inch diameter lines of pipe at three locations in the Province of British Columbia, estimated cost \$1,690,000.00, Order No. XG-14-70, dated 16 July, 1970.
- (4) Trans-Canada Pipe Lines Limited, new meter station, to be known as 'Spruce Meter Station', and other works connected therewith, in the Province of Manitoba, estimated cost \$68,300.00, Order No. XG-15-70, dated 24 September, 1970.
- (5) Petroleum Transmission Company, new pump station, to be known as 'Manson Pump Station', and other works connected therewith, in the Province of Manitoba, estimated cost \$130,000.00, Order No. XG-16-70, dated 30 September, 1970.

APPENDIX II (cont'd)

EXEMPTION ORDERS PURSUANT TO SECTION 49

ISSUED DURING 1970

CLASS "B" CONSTRUCTION

NATIONAL GAS PIPE LINES (cont'd)

- (6) Trans-Canada Pipe Lines Limited, replacement of portions of pipe line at three locations within the City of North Bay, in the Province of Ontario, estimated cost \$1,600,000.00, Order No. XG-17-70, dated 26 November, 1970.
- (7) Trans-Canada Pipe Lines Limited, new permanent meter station, to be known as 'Welwyn Meter Station', and other works connected therewith, in the Province of Saskatchewan, estimated cost \$28,700.00, Order No. XG-18-70, dated 26 November, 1970.

OIL PIPE LINES

- (1) Interprovincial Pipe Line Company, approximately 20 miles of 20-inch OD pipe line at two locations, additional pumping facilities at the existing 'Sarnia, Keyser, Bryanston and Wolverton Pump Stations', and other works connected therewith, all in Province of Ontario, estimated cost \$3,335,000.00, Order No. XO-1-70, dated 26 February, 1970, as amended.
- (2) Interprovincial Pipe Line Company, additional pumping facilities, metering equipment and controls, modifications, storage facilities, and other works connected therewith, at the existing 'Edmonton, Hardisty, Kerrobert, Loreburn, Regina, Glenavon, Cromer, Glenboro and Gretna Pump Stations' and the 'Milden Take-Off', in the Provinces of Alberta, Saskatchewan and Manitoba, estimated cost \$4,080,000.00, Order No. XO-2-70, dated 7 May, 1970, as amended.
- (3) Imperial Oil Limited, approximately seven miles of 10.75-inch OD pipe line, in the Provinces of Alberta and British Columbia, estimated cost \$263,000.00, Order No. XO-3-70, dated 23 July, 1970, as amended.

APPENDIX II (cont'd)
EXEMPTION ORDERS PURSUANT TO SECTION 49
ISSUED DURING 1970
CLASS "B" CONSTRUCTION

OIL PIPE LINES (cont'd)

- (4) Trans-Northern Pipe Line Company, a new pump station, to be known as 'Chesterville Pump Station', and other works connected therewith, in the Province of Ontario, estimated cost \$15,000.00, Order No. XO-4-70, dated 14 August, 1970.
- (5) Interprovincial Pipe Line Company, additional pumping facilities and modifications, and other works connected therewith, at the existing 'Cromer, Glenboro and Gretna Pump Stations', in the Province of Manitoba, estimated cost \$550,000.00, Order No. XO-5-70, dated 17 September, 1970.
- (6) Trans Mountain Oil Pipe Line Company, three new pump stations, to be known as 'Hinton', 'Merritt' and 'Wahleach', and additional pumping facilities at the existing 'Red Pass and Blue River Pump Stations', in the Provinces of Alberta and British Columbia, estimated cost \$2,625,000.00, Order No. XO-6-70, dated 26 November, 1970. (This Company also intends to expend \$2,375,000.00 for pipe line facilities for which authority has been granted under Certificate of Public Convenience and Necessity No. OC-2, dated 19 August, 1960, as amended.)

APPENDIX II (cont'd)
EXEMPTION ORDERS PURSUANT TO SECTION 49
ISSUED DURING 1970
CLASS "C" CONSTRUCTION

(This is miscellaneous construction of a routine character which, at the discretion of the Board, may be the subject of an annual blanket exemption order pursuant to Section 49).

NATURAL GAS PIPE LINES

- (1) Alberta Natural Gas Company, for certain miscellaneous facilities to be added to its pipe line system in the Provinces of Alberta and British Columbia, estimated cost \$719,548.00, Order No. XGM-1-70, dated 9 April, 1970.
- (2) Petroleum Transmission Company, for certain miscellaneous facilities to be added to its pipe line system in the Provinces of Alberta, Saskatchewan and Manitoba, estimated cost of unforeseen contingencies \$15,000.00, Order No. XGM-2-70, dated 4 June, 1970.
- (3) Westcoast Transmission Company Limited, for certain miscellaneous facilities to be added to its pipe line system in the Provinces of Alberta and British Columbia, estimated cost \$6,142,970.00, Order No. XGM-3-70, dated 11 June, 1970.
- (4) Trans-Canada Pipe Lines Limited, for certain miscellaneous facilities to be added to its pipe line system in the Provinces of Alberta, Saskatchewan, Manitoba, Ontario and Quebec, estimated cost \$12,133,864.00, Order No. XGM-4-70, dated 30 December, 1970.

APPENDIX II (cont'd)

EXEMPTION ORDERS PURSUANT TO SECTION 49

ISSUED DURING 1970

CLASS "C" CONSTRUCTION

OIL PIPE LINES

- (1) Trans Mountain Oil Pipe Line Company, for certain miscellaneous facilities to be added to its pipe line system in the Provinces of Alberta and British Columbia, estimated cost, \$403,050.00, Order No. XOM-1-70, dated 26 February, 1970.
- (2) Interprovincial Pipe Line Company, for certain miscellaneous facilities in the Provinces of Alberta, Saskatchewan, Manitoba and Ontario, estimated cost \$1,106,200.00, Order No. XOM-2-70, dated 2 April, 1970.
- (3) Montreal Pipe Line Company Limited, for certain miscellaneous facilities to be added to its pipe line system in the Province of Quebec, estimated cost \$843,700.00, Order No. XOM-3-70, dated 2 April, 1970.
- (4) Westspur Pipe Line Company, for certain miscellaneous facilities to be added to its pipe line system in the Provinces of Saskatchewan and Manitoba, estimated cost \$375,000.00, Order No. XOM-4-70, dated 9 April, 1970.
- (5) Trans-Northern Pipe Line Company, for certain miscellaneous facilities to be added to its pipe line system in the Provinces of Ontario and Quebec, estimated cost \$135,000.00, Order No. XOM-5-70, dated 21 May, 1970.

APPENDIX III

NEW LICENCES AND ORDERS TO EXPORT NATURAL GAS AND PROPANE ISSUED DURING 1970

A. LICENCES - NATURAL GAS EXPORT - SECTION 82

	APPLICANT	LICENCE NUMBER	DATE OF ISSUE	POINT OF EXPORT	TERM		MAXIMUM EXPORT VOLUMES		
					FROM	TO	DAILY (Mcf)	ANNUAL (Mcf)	TERM (MMcf)
1.	ICG Transmission Limited	GL-28	4/8/70	Sprague, Man.	1/11/70	31/10/95	1,634	337,000	8,084
2.	ICG Transmission Limited	GL-29	4/8/70	Fort Frances, Ont.	1/11/70	31/10/95	22,023	7,715,000	192,820
3.	ICG Transmission Limited	GL-30 ^(a)	4/8/70	Sprague, Man.	1/11/70	31/10/95	36,366	12,144,000	299,990
4.	Alberta & Southern Gas Co. Ltd.	GL-35	9/9/70	Kingsgate, B.C.	1/11/70	31/10/85	205,000	67,500,000	1,012,500
5.	Canadian-Montana Pipe Line Company	GL-36	9/9/70	Cardston, Alta.	1/11/70	31/10/85	12,000	3,650,000	54,750
6.	Trans-Canada Pipe Lines Limited	GL-37	9/9/70	Emerson, Man.	1/11/70	31/10/90	195,800	71,662,800	1,433,256
7.	Trans-Canada Pipe Lines Limited	GL-38	9/9/70	Emerson, Man.	1/11/70	31/10/90	50,000	18,300,000	366,000
8.	Trans-Canada Pipe Lines Limited	GL-39	9/9/70	Emerson, Man.	1/11/70	31/10/90	7,200	2,635,200	52,704
9.	Westcoast Transmission Company Limited	GL-40 ^(b)	9/9/70	Huntingdon, B.C.	1/11/70	31/10/90	75,863	27,770,000	554,200
10.	Westcoast Transmission Company Limited	GL-41 ^(b)	9/9/70	Huntingdon, B.C.	1/11/71 1/11/72	31/10/72 31/10/89	733,338 809,200	254,981,620) 281,358,840)	5,042,860

(a) This licence authorizes an export at Sprague, Manitoba for re-import at Rainy River, Ontario to serve the Rainy River-Fort Frances area and also provide for the gas volumes exported under Licence GL-29 at Fort Frances, Ontario.

(b) On the day that first delivery of gas is made under Licence GL-41, Licences PC1955-958, GL-23 and GL-40 will be revoked.

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APPENDIX III (cont'd)

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NEW LICENCES AND ORDERS TO EXPORT NATURAL GAS AND PROPANE ISSUED DURING 1970

B. LICENCES - PROPANE EXPORT - SECTION 82

APPLICANT	LICENCE NUMBER	DATE OF ISSUE	POINT OF EXPORT	TERM		ANNUAL (BARRELS)	MAXIMUM EXPORT VOLUMES
				FROM	TO		
1. Dome Petroleum Limited	GL-26(a)(b)	7/1/70	Gretna, Man.	1/1/70	31/12/70	1,800,000	
				1/1/71	31/12/71	2,220,000	
				1/1/72	31/12/72	2,075,000	
				1/1/73	31/12/73	2,050,000	
				1/1/74	31/12/74	2,030,000	
				1/1/75	31/12/75	2,000,000	
				1/1/76	31/12/76	1,985,000	
				1/1/77	31/12/77	1,950,000	
				1/1/78	31/12/78	1,925,000	
				1/1/79	31/12/79	1,915,000	
				1/1/80	31/12/80	1,995,000	
				1/1/81	31/12/81	2,185,000	
				1/1/82	31/12/82	2,250,000	
				1/1/83	31/12/83	2,210,000	
				1/1/84	31/12/84	2,175,000	
				1/1/85	31/12/85	2,145,000	
				1/1/86	31/12/86	2,120,000	
				1/1/87	31/12/87	1,485,000	
				1/1/88	31/12/88	1,465,000	
				1/1/89	31/12/89	1,440,000	
				1/1/90	31/12/90	1,065,000	
				1/1/91	31/12/91	1,045,000	
				1/1/92	31/12/92	1,040,000	
				1/1/93	31/12/93	1,025,000	
				1/1/94	31/10/94	655,000	
2. Pan American Canada Oil Company, Ltd.	GL-27(a)(c)	7/1/70	Gretna, Man.	1/1/70	31/12/70	1,800,000	
				1/1/71	31/12/71	2,220,000	

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APPENDIX III (cont'd)

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NEW LICENCES AND ORDERS TO EXPORT NATURAL GAS AND PROPANE ISSUED DURING 1970

B. LICENCES - PROPANE EXPORT - SECTION 82

APPLICANT	LICENCE NUMBER	DATE OF ISSUE	POINT OF EXPORT	TERM		MAXIMUM EXPORT VOLUMES ANNUAL (BARRELS)
				FROM	TO	
3. Dome Petroleum Limited	GL-31(d)	16/7/70	Gretna, Man.	1/1/72	31/12/72	2,075,000
				1/1/73	31/12/73	2,050,000
				1/1/74	31/12/74	2,030,000
				1/1/75	31/12/75	2,000,000
				1/1/76	31/12/76	1,985,000
				1/1/77	31/12/77	1,950,000
				1/1/78	31/12/78	1,925,000
				1/1/79	31/12/79	1,915,000
				1/1/80	31/12/80	1,995,000
				1/1/81	31/12/81	2,185,000
				1/1/82	31/12/82	2,250,000
				1/1/83	31/12/83	2,210,000
				1/1/84	31/12/84	2,175,000
				1/1/85	31/12/85	2,145,000
				1/1/86	31/12/86	2,120,000
				1/1/87	31/12/87	1,485,000
				1/1/88	31/12/88	1,465,000
				1/1/89	31/12/89	1,440,000
				1/1/90	31/12/90	1,065,000
				1/1/91	31/12/91	1,045,000
				1/1/92	31/12/92	1,040,000
				1/1/93	31/12/93	1,025,000
				1/1/94	31/12/94	655,000
				1/1/71	31/12/86	839,500
				1/1/87	31/12/87	906,000

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APPENDIX III (cont'd)

NEW LICENCES AND ORDERS TO EXPORT NATURAL GAS AND PROPANE ISSUED DURING 1970

B. LICENCES - PROPANE EXPORT - SECTION 82

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APPLICANT	LICENCE NUMBER	DATE OF ISSUE	POINT OF EXPORT	TERM		MAXIMUM EXPORT VOLUMES ANNUAL (BARRELS)
				FROM	TO	
4. Pan American Canada Oil Company, Ltd.	GL-32 ^(d)	16/7/70	Gretna, Man.	1/1/88	31/12/88	1,216,000
				1/1/89	31/12/89	1,241,000
				1/1/90	31/12/90	1,065,000
				1/1/91	31/12/91	1,045,000
				1/1/92	31/12/92	1,040,000
				1/1/93	31/12/93	1,025,000
				1/1/94	31/12/94	655,000
				1/1/71	31/12/93	584,000
5. TransCanada GasProducts Ltd.	GL-33 ^(a)	16/7/70	Gretna, Man.	1/1/94	31/10/94	486,400
				1/1/71	31/12/71	783,500
				1/1/72	31/12/75	993,500
				1/1/76	31/12/82	998,500
				1/1/83	31/12/83	858,500
				1/1/84	31/12/84	508,500
				1/1/85	31/12/85	258,500
				1/1/71	31/12/85	401,500
6. TransCanada GasProducts Ltd.	GL-34 ^(d)	16/7/70	Gretna, Man.	1/1/86	31/12/86	335,000
				1/1/87	31/12/87	25,000

- (a) This is an export-import licence whereby all propane exported at Gretna, Manitoba must be re-imported at Sarnia, Ontario.
 (b) This licence has been subsequently amended by AO-1-GL-26 (See Appendix IV).
 (c) This licence has been subsequently amended by AO-1-GL-27 (See Appendix IV).
 (d) This licence contains a provision which allows re-importation at Sarnia, Ontario of all or part of the propane exported at Gretna, Manitoba.

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APPENDIX III (cont'd)

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NEW LICENCES AND ORDERS TO EXPORT NATURAL GAS AND PROPANE ISSUED DURING 1970C. ORDERS AMENDING EXISTING NATURAL GAS EXPORT LICENCES - SECTION 17

APPLICANT	ORDER NUMBER	DATE OF ISSUE	COMMENTS
1. Trans-Canada Pipe Lines Limited	AO-6-GL-2	29/9/70	(i) Amendment extending terminal date from 31/12/70 to 31/12/71 and revising volumes for 1970 and 1971.
2. Niagara Gas Transmission Limited	AO-5-GL-6	27/5/70	(i) Amendment revising volumes for 1970.
3. Niagara Gas Transmission Limited	AO-6-GL-6	23/12/70	(i) Amendment revising volumes for 1970 and 1971.
4. Trans-Canada Pipe Lines Limited	AO-5-GL-20	14/1/70	(i) Amendment revising volumes for 1970.
5. Trans-Canada Pipe Lines Limited	AO-5-GL-21	29/9/70	(i) Amendment deleting maximum daily limitation. (ii) Amendment providing for gas exchange agreement.
6. Westcoast Transmission Company Limited	AO-7-GL-23	14/1/70	(i) Amendment revising volumes for 1970.
7. Westcoast Transmission Company Limited	AO-1-GL-40	22/10/70	(i) Amendment extending time limit for filing FPC authorizations from 31/10/70 to 30/11/70.

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APPENDIX III (cont'd)

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NEW LICENCES AND ORDERS TO EXPORT NATURAL GAS AND PROPANE ISSUED DURING 1970

D. ORDERS AMENDING EXISTING PROPANE EXPORT LICENCES - SECTION 17

APPLICANT	ORDER NUMBER	DATE OF ISSUE	COMMENTS
1. Dome Petroleum Limited	AO-1-GL-26	19/8/70	(i) Amendment advancing terminal date from 31/10/94 to 31/12/89. (ii) Amendment revising volumes.
2. Pan American Canada Oil Company, Ltd.	AO-1-GL-27	19/8/70	(i) Amendment revising volumes.

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APPENDIX III (cont'd)

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NEW LICENCES AND ORDERS TO EXPORT NATURAL GAS AND PROPANE ISSUED DURING 1970

E. ORDERS - NATURAL GAS EXPORT - PART VI REGULATIONS - SECTION 18

	APPLICANT	ORDER NUMBER	DATE OF ISSUE	POINT OF EXPORT	TERM		EXPORT VOLUMES
					FROM	TO	
1.	Trans-Canada Pipe Lines Limited	EO-1-70	5/2/70	Emerson, Man.	19/1/70	20/1/70	20,000 Mcf/day
2.	Gaz Métropolitain, inc.	EO-2-70 ^(a)	19/2/70	Montreal, Que. (truck)	19/2/70	15/3/70	2,200,000 U.S. Gallons LNG*
3.	Gaz Métropolitain, inc.	EO-3-70 ^(b)	8/7/70	Montreal, Que. (truck)	8/7/70	30/9/70	1,200,000 U.S. Gallons LNG*
4.	Gaz Métropolitain, inc.	EO-5-70	14/8/70	Montreal, Que. (truck)	14/8/70 1/11/70	20/10/70 15/4/71	3,035,000 U.S. Gallons LNG* 2,731,500 U.S. Gallons LNG*
5.	Trans-Canada Pipe Lines Limited	EO-6-70	8/10/70	Niagara Falls, Ont.	15/9/70	17/9/70	125,000 Mcf
6.	Trans-Canada Pipe Lines Limited	EO-7-70	23/10/70	Emerson, Man.	23/10/70	22/11/70	2,000 Mcf/day
7.	Gaz Métropolitain, inc.	EO-8-70	26/11/70	Montreal, Que. (truck)	26/11/70	1/4/71	1,700,000 U.S. Gallons LNG*

* LNG - Liquefied natural gas

(a) Subsequently amended by AO-1-EO-2-70

(b) Subsequently amended by AO-1-EO-3-70

APPENDIX III (cont'd)

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APPENDIX III (cont'd)

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NEW LICENCES AND ORDERS TO EXPORT NATURAL GAS AND PROPANE ISSUED DURING 1970F. AMENDING ORDERS - NATURAL GAS EXPORT - PART VI REGULATIONS - SECTION 18

<u>APPLICANT</u>	<u>ORDER NUMBER</u>	<u>DATE OF ISSUE</u>	<u>COMMENTS</u>
1. Gaz Métropolitain, inc.	AO-1-EO-2-70	13/3/70	(i) Amendment extending termination date from 15/3/70 to 20/3/70.
2. Gaz Métropolitain, inc.	AO-1-EO-3-70	17/9/70	(i) Amendment revising volumes. (ii) Amendment extending termination date from 30/9/70 to 31/10/70. (iii) Amendment providing for measurement tolerance.

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APPENDIX IV

SUBSISTING LICENCES AND ORDERS TO EXPORT NATURAL GAS AND PROPANE AS AT 31 DECEMBER 1970

A. NATURAL GAS

EXPORTER	LICENCE OR ORDER NUMBER	POINT OF EXPORT	TERM OF LICENCE OR ORDER		MAXIMUM EXPORT VOLUMES		
			FROM	TO	DAILY (Mcf)	ANNUAL (MMcf)	TERM (MMcf)
1. Trans-Canada Pipe Lines Limited	GL-1(AO-2)	Emerson, Man.	11/4/60	14/5/81	223,000	74,000	1,410,000
2. Trans-Canada Pipe Lines Limited	GL-2(AO-6)	Niagara Falls, Ont.	11/4/60 1/11/70 1/11/69	31/12/71 31/10/71 31/10/71	96,900 N/S N/S	20,663 30,000(a) 15,000	N/S N/S N/S
3. Alberta & Southern Gas Co. Ltd.	GL-3(AO-3)	Kingsgate, B.C.	31/10/61	31/10/86	458,750	153,270	3,826,000
4. Westcoast Transmission Company Limited	GL-4(AO-3)	Kingsgate, B.C.	10/12/61	10/12/81	152,000	51,000	1,020,000
5. Canadian-Montana Pipe Line Company	GL-5(AO-3)	Cardston, Alta.	31/10/61	31/10/86	36,000	10,950	273,750
6. Niagara Gas Transmission Limited	GL-6(AO-6)	Cornwall, Ont.	7/9/62	30/6/87	23,000(b)	5,520(b)	121,190
7. Canadian-Montana Pipe Line Company	GL-8(AO-1)	Aden, Alta.	1/9/60	14/5/74	99,460	19,892	220,000
8. Alberta & Southern Gas Co. Ltd.	GL-16(AO-1)	Kingsgate, B.C.	1/11/66 1/11/67	31/10/67 31/10/89	113,125 226,250	37,415 74,830	1,614,000
9. Canadian-Montana Pipe Line Company	GL-17(AO-1)	Cardston, Alta.	1/11/66 1/11/67	31/10/67 31/10/89	12,000 24,000	3,650 7,300	164,250
10. Trans-Canada Pipe Lines Limited	GL-18(AO-3)	Emerson, Man.	22/11/65 1/11/66	31/10/68 31/10/89	25,000 143,000	8,000(a) 52,300	1,200,000
11. Trans-Canada Pipe Lines Limited	GL-19(AO-1)	Philipsburg, Que.	1/11/65	31/10/89	17,700	6,500	108,000
12. Trans-Canada Pipe Lines Limited	GL-20(AO-5)	Emerson, Man.	21/11/68	31/10/91	87,600	32,100	765,000

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APPENDIX IV (cont'd)

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SUBSISTING LICENCES AND ORDERS TO EXPORT NATURAL GAS AND PROPANE AS AT 31 DECEMBER 1970

A. NATURAL GAS

EXPORTER	LICENCE OR ORDER NUMBER	POINT OF EXPORT	TERM OF LICENCE OR ORDER		MAXIMUM EXPORT VOLUMES		
			FROM	TO	DAILY (Mcf)	ANNUAL (MMcf)	TERM (MMcf)
13. Trans-Canada Pipe Lines Limited	GL-21(AO-5)(c)	Emerson, Man.	5/11/68	31/10/91	N/S	247,782	6,000,000
14. Westcoast Transmission Company Limited	PG-1955-958 (AO-2)(f)	Huntingdon, B.C.	1/1/66	2/10/77	303,450	N/S	1,192,500
15. Westcoast Transmission Company Limited	GL-23(AO-7)(f)	Huntingdon, B.C.	1/11/66 1/11/67 22/2/68	31/10/67 21/2/68 31/10/88	101,150 101,150 202,300	36,920 24,579 74,040	1,514,720
16. Alberta & Southern Gas Co. Ltd.	GL-24(AO-2)	Kingsgate, B.C.	1/11/68 1/11/69 1/11/91	31/10/69 31/10/91 31/10/93	121,000 236,000 135,400	38,900 77,900 44,600	1,841,900
17. Canadian-Montana Pipe Line Company	GL-25(AO-2)	Cardston, Alta.	1/11/68 1/11/69 1/11/91	31/10/69 31/10/91 31/10/93	12,000 24,000 13,800	3,650 7,300 4,200	172,650
18. Patrick T. Buckley	GO-1-68	Coutts, Alta.	1/6/68	31/5/73	(d)	5	N/S
19. ICG Transmission Limited	GL-28	Sprague, Man.	1/11/70	31/10/95	1,634	337	8,084
20. ICG Transmission Limited	GL-29	Fort Frances, Ont.	1/11/70	31/10/95	22,023	7,715	192,820
21. ICG Transmission Limited	GL-30(e)	Sprague, Man.	1/11/70	31/10/95	36,366	12,144	299,990
22. Alberta & Southern Gas Co. Ltd.	GL-35	Kingsgate, B.C.	1/11/70	31/10/85	205,000	67,500	1,012,500
23. Canadian-Montana Pipe Line Company	GL-36	Cardston, Alta.	1/11/70	31/10/85	12,000	3,650	54,750
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APPENDIX IV (cont'd)

APPENDIX IV (cont'd)

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SUBSISTING LICENCES AND ORDERS TO EXPORT NATURAL GAS AND PROPANE AS AT 31 DECEMBER 1970

A. NATURAL GAS

EXPORTER	LICENCE OR ORDER NUMBER	POINT OF EXPORT	TERM OF LICENCE OR ORDER		MAXIMUM EXPORT VOLUMES		
			FROM	TO	DAILY (Mcf)	ANNUAL (MMcf)	TERM (MMcf)
24. Trans-Canada Pipe Lines Limited	GL-37	Emerson, Man.	1/11/70	31/10/90	195,800	71,663	1,433,256
25. Trans-Canada Pipe Lines Limited	GL-38	Emerson, Man.	1/11/70	31/10/90	50,000	18,300	366,000
26. Trans-Canada Pipe Lines Limited	GL-39	Emerson, Man.	1/11/70	31/10/90	7,200	2,635	52,704
27. Westcoast Transmission Company Limited	GL-40(AO-1) (f)	Huntingdon, B.C.	1/11/70	31/10/90	75,863	27,770	554,200
28. Westcoast Transmission Company Limited	GL-41 (f)	Huntingdon, B.C.	1/11/71 1/11/72	31/10/72 31/10/89	733,338 809,200	254,982) 281,359)	5,042,860
29. Gaz Métropolitain, inc.	EO-5-70	Montreal, Que.(truck)	14/8/70	20/10/70	N/S	N/S	3,035,000 U.S. gallons LNG*
			1/11/70	15/4/71	N/S	N/S	2,731,500 U.S. gallons LNG*
30. Gaz Métropolitain, inc.	EO-8-70	Montreal, Que.(truck)	26/11/70	1/4/71	N/S	N/S	1,700,000 U.S. gallons LNG*

N/S Not specified.

* Liquefied natural gas.

(a) Interruptible.

(b) Except for the period 23/12/70 to 31/12/71 when exports of 30,000 Mcf daily and 6,700 MMcf are authorized.

(c) This licence authorizes an export at Emerson, Manitoba for re-import at Sault Ste. Marie and Sarnia, Ontario, to serve the Eastern Canadian market.

(d) Not more than 1 MMcf in any one month.

(e) This licence authorizes an export at Sprague, Manitoba for re-import at Rainy River, Ontario to serve the Rainy River-Fort Frances area and also provide for the gas volumes exported under Licence GL-29 at Fort Frances, Ontario.

(f) On the day that first delivery of gas is made under Licence GL-41, Licences PC1955-958, GL-23 and GL-40 will be revoked.

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APPENDIX IV (cont'd)

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SUBSISTING LICENCES AND ORDERS TO EXPORT NATURAL GAS AND PROPANE AS AT 31 DECEMBER 1970

B. PROPANE

EXPORTER	LICENCE OR ORDER NUMBER	POINT OF EXPORT	TERM OF LICENCE OR ORDER		MAXIMUM EXPORT VOLUMES ANNUAL (BARRELS)
			FROM	TO	
1. Dome Petroleum Limited	GL-26(AO-1) ^(a)	Gretna, Man.	1/1/70	31/12/70	1,800,000
			1/1/71	31/12/71	2,565,500
			1/1/72	31/12/72	2,630,500
			1/1/73	31/12/73	2,605,500
			1/1/74	31/12/74	2,585,500
			1/1/75	31/12/75	2,555,500
			1/1/76	31/12/76	2,545,500
			1/1/77	31/12/77	2,510,500
			1/1/78	31/12/78	2,485,500
			1/1/79	31/12/79	2,475,500
			1/1/80	31/12/80	2,555,500
			1/1/81	31/12/81	2,745,500
			1/1/82	31/12/82	2,810,500
			1/1/83	31/12/83	2,630,500
			1/1/84	31/12/84	2,245,500
			1/1/85	31/12/85	1,965,500
			1/1/86	31/12/86	1,615,500
			1/1/87	31/12/87	604,000
			1/1/88	31/12/88	249,000
			1/1/89	31/12/89	199,000
2. Pan American Canada Oil Company, Ltd.	GL-27(AO-1) ^(a)	Gretna, Man.	1/1/70	31/12/70	1,800,000
			1/1/71	31/12/71	1,636,000
			1/1/72	31/12/72	1,491,000
			1/1/73	31/12/73	1,466,000
			1/1/74	31/12/74	1,446,000
			1/1/75	31/12/75	1,416,000
			1/1/76	31/12/76	1,401,000

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APPENDIX IV (cont'd)

SUBSISTING LICENCES AND ORDERS TO EXPORT NATURAL GAS AND PROPANE AS AT 31 DECEMBER 1970

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B. PROPANE

<u>EXPORTER</u>	<u>LICENCE OR ORDER NUMBER</u>	<u>POINT OF EXPORT</u>	<u>TERM OF LICENCE OR ORDER</u>		<u>MAXIMUM EXPORT VOLUMES (BARRELS)</u>
			<u>FROM</u>	<u>TO</u>	

1/1/77	31/12/77	1,366,000
1/1/78	31/12/78	1,341,000
1/1/79	31/12/79	1,331,000
1/1/80	31/12/80	1,411,000
1/1/81	31/12/81	1,601,000
1/1/82	31/12/82	1,666,000
1/1/83	31/12/83	1,626,000
1/1/84	31/12/84	1,591,000
1/1/85	31/12/85	1,561,000
1/1/86	31/12/86	1,536,000
1/1/87	31/12/87	901,000
1/1/88	31/12/88	881,000
1/1/89	31/12/89	856,000
1/1/90	31/12/90	481,000
1/1/91	31/12/91	461,000
1/1/92	31/12/92	456,000
1/1/93	31/12/93	441,000
1/1/94	31/10/94	168,000

3. Dome Petroleum Limited

GL-31 (b)

Gretna, Man.

1/1/71	31/12/86	839,500
1/1/87	31/12/87	906,000
1/1/88	31/12/88	1,216,000
1/1/89	31/12/89	1,241,000
1/1/90	31/12/90	1,065,000
1/1/91	31/12/91	1,045,000
1/1/92	31/12/92	1,040,000
1/1/93	31/12/93	1,025,000
1/1/94	31/10/94	655,000

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APPENDIX IV (cont'd)

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SUBSISTING LICENCES AND ORDERS TO EXPORT NATURAL GAS AND PROPANE AS AT 31 DECEMBER 1970

B. PROPANE

EXPORTER	LICENCE OR ORDER NUMBER	POINT OF EXPORT	TERM OF LICENCE OR ORDER		MAXIMUM EXPORT VOLUMES ANNUAL (BARRELS)
			FROM	TO	
4. Pan American Canada Oil Company, Ltd.	GL-32(b)	Gretna, Man.	1/1/71 1/1/94	31/12/93 31/10/94	584,000 486,400
5. TransCanada GasProducts Ltd.	GL-33(a)	Gretna, Man.	1/1/71 1/1/72 1/1/76 1/1/83 1/1/84 1/1/85	31/12/71 31/12/75 31/12/82 31/12/83 31/12/84 31/12/85	783,500 993,500 998,500 858,500 508,500 258,500
6. TransCanada GasProducts Ltd.	GL-34(b)	Gretna, Man.	1/1/71 1/1/86 1/1/87	31/12/85 31/12/86 31/12/87	401,500 335,000 25,000

APPENDIX IV (cont'd)

(a) This is an export-import licence whereby all propane exported at Gretna, Manitoba must be re-imported at Sarnia, Ontario.

(b) This licence contains a provision which allows re-importation at Sarnia, Ontario of all or part of the propane exported at Gretna, Manitoba.

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APPENDIX V

EXPORTS OF NATURAL GAS AND PROPANE

A. NATURAL GAS

EXPORTER AND LICENCE/ORDER	MAXIMUM		(MMcf)							TOTAL AUTHORIZED EXPORTS	REMAINING (a) UNDER LICENCES
	DAILY (Mcft)	ANNUAL (MMcf)	CUMULATIVE TO 31/12/65	1966	1967	1968	1969	1970	CUMULATIVE TO 31/12/70		
1. Trans-Canada Pipe Lines Limited GL-1(AO-2)	223,000	74,000	341,716	73,763	74,700	73,999	74,188	73,741	712,107	1,410,000	697,893
2. Trans-Canada Pipe Lines Limited GL-2(AO-6)	96,900	(b) 20,663	-	-	-	455	11,099	28,019	39,573	N/S	N/A
3. Alberta & Southern Gas Co. Ltd. (c) GL-3(AO-3)	458,750	153,270	552,943	159,560	164,038	159,357	164,895	166,624	1,367,417	3,826,000	2,458,583
4. Westcoast Transmission Company Limited GL-4(AO-3)	152,000	51,000	163,011	43,576	47,600	50,437	47,990	49,159	401,773	1,020,000	618,227
5. Canadian-Montana Pipe Line Company (c) GL-5(AO-3)	36,000	10,950	42,672	10,904	10,225	12,058	11,966	10,992	98,817	273,750	174,933

APPENDIX V

APPENDIX V (cont'd)

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EXPORTS OF NATURAL GAS AND PROPANE

A. NATURAL GAS

EXPORTER AND LICENCE/ORDER	MAXIMUM		(MMcf)					CUMULATIVE TO 31/12/70	TOTAL AUTHORIZED EXPORTS	REMAINING (a) UNDER LICENCES
	DAILY (Mc)	ANNUAL (MMcf)	1966	1967	1968	1969	1970			
6. Niagara Gas Transmission Limited GL-6(AO-6)	23,000	5,520 ^(d)	3,371	3,994	4,394	5,361	5,495	29,781	121,190	91,409
7. Patrick T. Buckley GL-7(AO-1) ^(f)	(g)	10	2	2	2	-	-	22	N/S	N/A
8. Canadian-Montana Pipe Line Company GL-8(AO-1)	99,460	19,892	19,602	16,579	17,345	17,176	17,429	179,755	220,000	40,245
9. Alberta & Southern Gas Co. Ltd. (c) GL-16(AO-1) 1/11/66 to 31/10/67 1/11/67 to 31/10/89	113,125 226,250	37,415 74,830	6,253	42,068	75,833	52,769	77,058	253,981))	1,614,000	1,360,019
10. Canadian-Montana Pipe Line Company (c) GL-17-(AO-1) 1/11/66 to 31/10/67 1/11/67 to 31/10/89	12,000 24,000	3,650 7,300	613	3,966	7,232	6,405	7,326	25,542))	164,250	138,708
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APPENDIX V (cont'd)

APPENDIX V (cont'd)

EXPORTS OF NATURAL GAS AND PROPANE

A. NATURAL GAS

EXPORTER AND LICENCE/ORDER	MAXIMUM		CUMULATIVE TO 31/12/65	(MMcf)					CUMULATIVE TO 31/12/70	TOTAL AUTHORIZED EXPORTS	REMAINING UNDER LICENCES (a)
	DAILY (Mcf)	ANNUAL (MMcf)		1966	1967	1968	1969	1970			
11. Trans-Canada Pipe Lines Limited GL-18(AO-3) 22/11/65 to 31/10/68(i) 1/11/66 to 31/10/89(j)	25,000 143,000	8,000 52,300	- -	3,385 -	2,525 6,493	2,089 41,108	- 43,604	- 47,547	7,999 138,752	1,200,000	1,053,249
12. Trans-Canada Pipe Lines Limited GL-19(AO-1)	17,700	6,500	-	270	613	1,452	2,095	2,532	6,962	108,000	101,038
13. Trans-Canada Pipe Lines Limited GL-20(AO-5)	87,600(k)	32,100(k)	-	-	-	1,073	19,895	36,990	57,958	765,000	707,042
14. Trans-Canada Pipe Lines Limited (1) GL-21(AO-5)	N/S	247,782	-	-	-	19,906	159,449	230,392	409,747	6,000,000	5,590,253
15. Trans-Canada Pipe Lines Limited GL-22(AO-4)	N/S	N/S	-	-	-	2,592	-	-	2,592	3,000	N/A
											... 4

APPENDIX V (cont'd)

APPENDIX V (cont'd)

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EXPORTS OF NATURAL GAS AND PROPANE

A. NATURAL GAS

EXPORTER AND LICENCE/ORDER	MAXIMUM (MMcf)						CUMULATIVE TO 31/12/70	TOTAL AUTHORIZED EXPORTS	REMAINING UNDER LICENCES
	DAILY (McF)	ANNUAL (MMcf)	CUMULATIVE TO 31/12/65	1966	1967	1968	1969	1970	
16. Westcoast Transmission Company Limited FC1955-958 (AO-2) (o) 1955 to 31/12/65 1/1/66 to 2/10/77	304,000 303,450	100,000 N/S	724,280 -	110,520	118,783	109,152	103,163	104,361	N/A 1,192,500 N/A 646,521
17. Westcoast Transmission Company Limited GL-23(AO-7) (o) 1/11/66 to 31/10/67 1/11/67 to 21/ 2/68 22/ 2/68 to 31/10/88	101,150 101,150 202,300	36,920 24,579 74,040	( ( (	-	21,645	39,693	68,775	69,737	1,514,720 1,314,870
18. Alberta & Southern Gas Co. Ltd. GL-24(AO-2) 1/11/68 to 31/10/69 1/11/69 to 31/10/91 1/11/91 to 31/10/93	121,000 236,000 135,400	38,900 77,900 44,600	(((-	-	6,173	46,445	50,644	1,841,900 1,738,638

APPENDIX V (cont'd)

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APPENDIX V (cont'd)

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EXPORTS OF NATURAL GAS AND PROPANE

A. NATURAL GAS

EXPORTER AND LICENCE/ORDER	MAXIMUM		(MMcf)					CUMULATIVE TO 31/12/65	CUMULATIVE TO 31/12/70	TOTAL AUTHORIZED EXPORTS	REMAINING (a) UNDER LICENCES
	DAILY (Mcft)	ANNUAL (MMcf)	1966	1967	1968	1969	1970				
19. Canadian-Montana Pipe Line Company GL-25(AO-2) 1/11/68 to 31/10/69 1/11/69 to 31/10/91 1/11/91 to 31/10/93	12,000 24,000 13,800	3,650 7,300 4,200	-	-	-	4,283	6,572	( ( (	10,855)))	172,650	161,795
20. ICG Transmission Limited GL-28	1,634	337	-	-	-	-	-	-	(m)	8,084	8,084
21. ICG Transmission Limited GL-29	22,023	7,715	-	-	-	-	-	-	(m)	192,820	192,820
22. ICG Transmission Limited GL-30(n)	36,366	12,144	-	-	-	-	-	-	(m)	299,990	299,990
23. Alberta & Southern Gas Co. Ltd. GL-35	205,000	67,500	-	-	-	-	10,155	-	10,155	1,012,500	1,002,345
24. Canadian-Montana Pipe Line Company GL-36	12,000	3,650	-	-	-	-	241	-	241	54,750	54,509
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APPENDIX V (cont'd)

EXPORTS OF NATURAL GAS AND PROPANE

A. NATURAL GAS

EXPORTER AND LICENCE/ORDER	MAXIMUM		CUMULATIVE TO 31/12/65	(MMcf)					CUMULATIVE TO 31/12/70	TOTAL AUTHORIZED EXPORTS	REMAINING (a) UNDER LICENCES
	DAILY (Mcf)	ANNUAL (MMcf)		1966	1967	1968	1969	1970			
25. Trans-Canada Pipe Lines Limited GL-37	195,800	71,663	-	-	-	-	-	11,944	11,944	1,433,256	1,421,312
26. Trans-Canada Pipe Lines Limited GL-38	50,000	18,300	-	-	-	-	-	2,332	2,332	366,000	363,668
27. Trans-Canada Pipe Lines Limited GL-39	7,200	2,635	-	-	-	-	-	439	439	52,704	52,265
28. Westcoast Transmission Company Limited GL-40(AO-1) (o)	75,863	27,770	-	-	-	-	-	-	(m)	554,200	554,200
29. Westcoast Transmission Company Limited GL-41 (o) 1/11/71 to 31/10/72 1/11/72 to 31/10/89	733,338 809,200	254,982 281,359	-	-	-	-	-	-	(m)	5,042,860	5,042,860
											... 7

APPENDIX V (cont'd)

APPENDIX V (cont'd)

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EXPORTS OF NATURAL GAS AND PROPANE

A. NATURAL GAS

EXPORTER AND LICENCE/ORDER	MAXIMUM		(MMcf)					CUMULATIVE TO 31/12/65	CUMULATIVE TO 31/12/70	TOTAL AUTHORIZED EXPORTS	REMAINING (a) UNDER LICENCES
	DAILY (Mcft)	ANNUAL (MMcf)	1966	1967	1968	1969	1970				
30. Patrick T. Buckley GO-1-68(f)	(p)	5	-	-	--	--	--	-	--	N/S	N/A
31. Union Gas Company of Canada, Limited EO-2-63	N/S	N/S	-	-	-	-	-	55	55	200	N/A
32. Trans-Canada Pipe Lines Limited EO-1-70	N/S	N/S	-	-	-	-	25	-	25	20	N/A
33. Trans-Canada Pipe Lines Limited EO-6-70	N/S	N/S	-	-	-	-	124	-	124	125	N/A
34. Gaz Métropolitain, inc. EO-2-70(AO-1)(q)	N/A	N/A	-	-	-	-	151	-	151	N/A	N/A
35. Gaz Métropolitain, inc. EO-3-70(AO-1)(r)	N/A	N/A	-	-	-	-	108	-	108	N/A	N/A

APPENDIX V (cont'd)

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APPENDIX V (cont'd)

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EXPORTS OF NATURAL GAS AND PROPANE

A. NATURAL GAS

EXPORTER AND LICENCE/ORDER	MAXIMUM		CUMULATIVE TO 31/12/65	(MMcf)					CUMULATIVE TO 31/12/70	TOTAL AUTHORIZED EXPORTS	REMAINING (a) UNDER LICENCES
	DAILY (Mcf)	ANNUAL (MMcf)		1966	1967	1968	1969	1970			
36. Gaz Métropolitain, inc. EO-5-70(s) 14/8/70 to 20/10/70 1/11/70 to 15/4/71	(N/A	N/A	-	-	-	-	-	374	374)	N/A	N/A
37. Trans-Canada Pipe Lines Limited EO-7-70 23/10/70 to 22/11/70(t)	2,000	N/A	-	-	-	-	-	-	-	N/A	N/A
38. Gaz Métropolitain, inc. EO-8-70(u)	N/A	N/A	-	-	-	-	-	57	57	N/A	N/A
Gross Exports Deduct exports for Re-import: Item 14, GL-21 Item 22, GL-30	1,923,483	431,819	513,231	624,350	839,558	1,010,568	5,343,009	409,747			
Net Exports	1,923,483	431,819	513,231	604,444	680,109	780,176	4,933,262				

APPENDIX V (cont'd)

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EXPORTS OF NATURAL GAS AND PROPANE

A. NATURAL GAS

FOOTNOTES

- (a) It may not be possible to export total volumes remaining under licences due to restrictions on peak day and annual volumes.
- (b) Daily and annual volumes increased to 110,000 Mcf and 25,000 MMcf respectively, for the period 1/11/69 to 31/10/70. An export of 30,000 MMcf in the period 1/11/70 to 31/10/71 was also authorized, and an additional export of 15,000 MMcf on an interruptible basis in each of the years commencing 1 November 1969 and 1970.
- (c) Volumes exceed licenced annual amounts due to make-up of accumulated shortfalls from previous years as authorized by licence.
- (d) This licence authorizes daily and annual exports of 30,000 Mcf and 6,700 MMcf respectively during the period 23/12/70 to 31/12/71.
- (e) Includes 1 MMcf authorized export in 1962 prior to September 7, 1962 under GL-6(AO-3) effective at that time.
- (f) On 1 June 1968 GL-7 was replaced by GO-1-68.
- (g) 1,300 Mcf per month.
- (h) Excludes exports prior to 1/9/60, effective commencement date of licence GL-8.
- (i) Interruptible export. Terminated on 31 October 1968.
- (j) Firm export.
- (k) This licence authorizes a daily and annual export of 109,500 Mcf and 36,990 MMcf respectively during the year ending the 31st day of October, 1970.

APPENDIX V (cont'd)

EXPORTS OF NATURAL GAS AND PROPANE

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FOOTNOTES (cont'd)

- (l) This licence authorizes an export at Emerson, Manitoba for re-import at Sault Ste. Marie and Sarnia, Ontario to serve the Eastern Canadian market.
- (m) No volumes exported up to December 31, 1970.
- (n) This licence authorizes an export near Sprague, Manitoba for re-import near Rainy River, Ontario.
- (o) On the day that first delivery of gas is made under licence GL-41, Licences PC1955-958, GL-23 and GL-40 will be revoked.
- (p) 1,000 Mcf per month.
- (q) This order authorizes an export of 2,200,000 U.S. gallons of liquefied natural gas, the volumes to be reported to the Board in equivalent Mcf at 1,000 Btu's per cubic foot.
- (r) This order authorizes an export of 1,800,000 U.S. gallons of liquefied natural gas, the volumes to be reported to the Board in equivalent Mcf at 1,000 Btu's per cubic foot.
- (s) This order authorizes an export of liquefied natural gas of 3,035,000 U.S. gallons and 2,731,500 U.S. gallons for the periods 14/8/70 to 20/10/70 and 1/11/70 to 15/4/71 respectively, the volumes to be reported to the Board in equivalent Mcf at 1,000 Btu's per cubic foot.
- (t) Or until the commencement of delivery of natural gas by Great Lakes Transmission Company.
- (u) This order authorizes an export of 1,700,000 U.S. gallons of liquefied natural gas, the volumes to be reported to the Board in equivalent Mcf at 1,000 Btu's per cubic foot.

N/S Not specified.

N/A Not applicable.

-- Amount too small to be expressed.

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APPENDIX V (cont'd)EXPORTS OF NATURAL GAS AND PROPANEB. PROPANE

EXPORTER	LICENCE/ORDER	TERM OF LICENCE/ORDER FROM TO	MAXIMUM ANNUAL EXPORT VOLUME (Barrels)	1970 EXPORTS (Barrels)
1. Dome Petroleum Limited	GL-26(AO-1)(a)	1/1/70 31/12/70 1/1/71 31/12/89	1,800,000 See Appendix IV	313,442
2. Pan American Canada Oil Company, Ltd.	GL-27(AO-1)(a)	1/1/70 31/12/70 1/1/71 31/10/94	1,800,000 See Appendix IV	422,885
3. Dome Petroleum Limited	GL-31(b)(c)	1/1/71 31/10/94	See Appendix IV	-
4. Pan American Canada Oil Company, Ltd.	GL-32(b)(c)	1/1/71 31/10/94	See Appendix IV	-
5. TransCanada GasProducts Ltd.	GL-33(a)(c)	1/1/71 31/12/85	See Appendix IV	-
6. TransCanada GasProducts Ltd.	GL-34(b)(c)	1/1/71 31/12/87	See Appendix IV	-

(a) This is an export-import licence whereby all propane exported at Gretna, Manitoba must be re-imported at Sarnia, Ontario.

(b) This licence contains a provision which allows re-importation at Sarnia, Ontario of all or part of the propane exported at Gretna, Manitoba.

(c) Exports under this licence are authorized to commence on 1/1/71.

* * * *

APPENDIX VINEW LICENCES AND ORDERS TO IMPORT NATURAL GAS AND PROPANE ISSUED DURING 1970A. LICENCES - NATURAL GAS IMPORT - SECTION 82

APPLICANT	LICENCE NUMBER	DATE OF ISSUE	POINT OF IMPORT	TERM		MAXIMUM IMPORT VOLUMES		
				FROM	TO	DAILY (Mcf)	ANNUAL (MMcf)	TERM (MMcf)
1. ICG Transmission Limited	GL-30(a)	4/8/70	Rainy River, Ont.	1/11/70	31/10/95	36,366	12,144	299,990

(a) This is an export-import licence whereby all gas exported at Sprague, Manitoba, must be re-imported at Rainy River, Ontario.

APPENDIX VI (cont'd)

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NEW LICENCES AND ORDERS TO IMPORT NATURAL GAS AND PROPANE ISSUED DURING 1970

B. LICENCES - PROPANE IMPORT - SECTION 82

APPLICANT	LICENCE NUMBER	DATE OF ISSUE	POINT OF IMPORT	TERM		ANNUAL (BARRELS)
				FROM	TO	
1. Dome Petroleum Limited	GL-26(a)(b)	7/1/70	Sarnia, Ont.	1/1/70	31/12/70	1,800,000
				1/1/71	31/12/71	2,220,000
				1/1/72	31/12/72	2,075,000
				1/1/73	31/12/73	2,050,000
				1/1/74	31/12/74	2,030,000
				1/1/75	31/12/75	2,000,000
				1/1/76	31/12/76	1,985,000
				1/1/77	31/12/77	1,950,000
				1/1/78	31/12/78	1,925,000
				1/1/79	31/12/79	1,915,000
				1/1/80	31/12/80	1,995,000
				1/1/81	31/12/81	2,185,000
				1/1/82	31/12/82	2,250,000
				1/1/83	31/12/83	2,210,000
				1/1/84	31/12/84	2,175,000
				1/1/85	31/12/85	2,145,000
				1/1/86	31/12/86	2,120,000
				1/1/87	31/12/87	1,485,000
				1/1/88	31/12/88	1,465,000
				1/1/89	31/12/89	1,440,000
				1/1/90	31/12/90	1,065,000
				1/1/91	31/12/91	1,045,000
				1/1/92	31/12/92	1,040,000
				1/1/93	31/12/93	1,025,000
				1/1/94	31/12/94	655,000

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APPENDIX VI (cont'd)

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NEW LICENCES AND ORDERS TO IMPORT NATURAL GAS AND PROPANE ISSUED DURING 1970

B. LICENCES - PROPANE IMPORT - SECTION 82

APPLICANT	LICENCE NUMBER	DATE OF ISSUE	POINT OF IMPORT	TERM		MAXIMUM IMPORT VOLUMES ANNUAL (BARRELS)
				FROM	TO	
2. Pan American Canada Oil Company, Ltd.	GL-27(a)(c)	7/1/70	Sarnia, Ont.	1/1/70	31/12/70	1,800,000
				1/1/71	31/12/71	2,220,000
				1/1/72	31/12/72	2,075,000
				1/1/73	31/12/73	2,050,000
				1/1/74	31/12/74	2,030,000
				1/1/75	31/12/75	2,000,000
				1/1/76	31/12/76	1,985,000
				1/1/77	31/12/77	1,950,000
				1/1/78	31/12/78	1,925,000
				1/1/79	31/12/79	1,915,000
				1/1/80	31/12/80	1,995,000
				1/1/81	31/12/81	2,185,000
				1/1/82	31/12/82	2,250,000
				1/1/83	31/12/83	2,210,000
				1/1/84	31/12/84	2,175,000
				1/1/85	31/12/85	2,145,000
				1/1/86	31/12/86	2,120,000
				1/1/87	31/12/87	1,485,000
				1/1/88	31/12/88	1,465,000
				1/1/89	31/12/89	1,440,000
				1/1/90	31/12/90	1,065,000
				1/1/91	31/12/91	1,045,000
				1/1/92	31/12/92	1,040,000
				1/1/93	31/12/93	1,025,000
				1/1/94	31/10/94	655,000

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APPENDIX VI (cont'd)

NEW LICENCES AND ORDERS TO IMPORT NATURAL GAS AND PROPANE ISSUED DURING 1970

B. LICENCES - PROPANE IMPORT - SECTION 82

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APPLICANT	LICENCE NUMBER	DATE OF ISSUE	POINT OF IMPORT	TERM		MAXIMUM IMPORT VOLUMES ANNUAL (BARRELS)
				FROM	TO	
3. Dome Petroleum Limited	GL-31 (d)	16/7/70	Sarnia, Ont.	1/1/71 1/1/87 1/1/88 1/1/89 1/1/90 1/1/91 1/1/92 1/1/93 1/1/94	31/12/86 31/12/87 31/12/88 31/12/89 31/12/90 31/12/91 31/12/92 31/12/93 31/10/94	839,500 906,000 1,216,000 1,241,000 1,065,000 1,045,000 1,040,000 1,025,000 655,000
4. Pan American Canada Oil Company, Ltd.	GL-32 (d)	16/7/70	Sarnia, Ont.	1/1/71 1/1/94	31/12/93 31/10/94	584,000 486,400
5. TransCanada GasProducts Ltd.	GL-33 (a)	16/7/70	Sarnia, Ont.	1/1/71 1/1/72 1/1/76 1/1/83 1/1/84 1/1/85	31/12/71 31/12/75 31/12/82 31/12/83 31/12/84 31/12/85	783,500 993,500 998,500 858,500 508,500 258,500
6. TransCanada GasProducts Ltd.	GL-34 (d)	16/7/70	Sarnia, Ont.	1/1/71 1/1/86 1/1/87	31/12/85 31/12/86 31/12/87	401,500 335,000 25,000

- (a) This is an export-import licence whereby all propane exported at Gretna, Manitoba, must be re-imported at Sarnia, Ontario.
 (b) This licence has been subsequently amended by AO-1-GL-26 (See Appendix VII).
 (c) This licence has been subsequently amended by AO-1-GL-27 (See Appendix VII).
 (d) This licence contains a provision which allows re-importation at Sarnia, Ontario, of all or part of the propane exported at Gretna, Manitoba.

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APPENDIX VI (cont'd)

page 5

NEW LICENCES AND ORDERS TO IMPORT NATURAL GAS AND PROPANE ISSUED DURING 1970

C. ORDERS AMENDING EXISTING NATURAL GAS IMPORT LICENCES - SECTION 17

APPLICANT	ORDER NUMBER	DATE OF ISSUE	COMMENTS
1. Trans-Canada Pipe Lines Limited	AO-5-GL-21	29/9/70	(i) Amendment deleting maximum daily limitation. (ii) Amendment providing for gas exchange agreement.

D. ORDERS AMENDING EXISTING PROPANE IMPORT LICENCES - SECTION 17

APPLICANT	ORDER NUMBER	DATE OF ISSUE	COMMENTS
1. Dome Petroleum Limited	AO-1-GL-26	19/8/70	(i) Amendment advancing terminal date from 31/10/94 to 31/12/89. (ii) Amendment revising volumes.
2. Pan American Canada Oil Company, Ltd.	AO-1-GL-27	19/8/70	(i) Amendment revising volumes.

E. ORDERS - NATURAL GAS IMPORT - PART VI REGULATIONS - SECTION 17

IMPORTER	ORDER NUMBER	POINT OF IMPORT	TERM FROM TO	MAXIMUM IMPORT VOLUMES TERM
Westcoast Transmission Company Limited	EO-4-70	Portland, Oregon (truck)	1/8/70 31/8/70	12,000 U.S. gallons liquefied natural gas

F. ORDERS AMENDING EXISTING NATURAL GAS IMPORT ORDERS - SECTION 17

None issued.

* * * * *

APPENDIX VII

SUBSISTING LICENCES AND ORDERS TO IMPORT NATURAL GAS AND PROPANE AS AT 31 DECEMBER 1970

A. NATURAL GAS

	IMPORTER	LICENCE OR ORDER NUMBER	POINT OF IMPORT	TERM OF LICENCE OR ORDER		MAXIMUM IMPORT VOLUMES		
				FROM	TO	DAILY (Mcf)	ANNUAL (MMcf)	TERM (MMcf)
1.	Union Gas Company of Canada, Limited	GLI-1	Ojibway, Ont.	1/ 2/65	5/11/76	55,000	15,500	170,000
2.	Border Utilities Limited	GO-2-66	Countts, Alta.	2/ 6/66	14/ 9/85	1,000	N/S	N/S
3.	Milk River Gas Company	GO-6-66	Countts, Alta.	22/ 9/66	14/ 9/85	1,000	N/S	N/S
4.	Trans-Canada Pipe Lines Limited	GL-21 (AO-5 ^(a))	(Sault Ste. Marie, Ont. and Sarnia, Ont.)	5/11/68	31/10/91	N/S	247,782	6,000,000
5.	ICG Transmission Limited	GL-30 ^(b)	Rainy River, Ont.	1/11/70	31/10/95	36,366	12,144	299,990

(a) This licence authorizes an export at Emerson, Manitoba for re-import at Sault Ste. Marie and Sarnia, Ontario, to serve the Eastern Canadian market.

(b) This licence authorizes an export at Sprague, Manitoba for re-import at Rainy River, Ontario to serve the Rainy River-Fort Frances area and supply export volumes for licence GL-29.

N/S Not specified.

APPENDIX VII (cont'd)SUBSISTING LICENCES AND ORDERS TO IMPORT NATURAL GAS AND PROPANE AS AT 31 DECEMBER 1970B. PROPANE

IMPORTER	LICENCE OR ORDER NUMBER	POINT OF IMPORT	TERM OF LICENCE OR ORDER		MAXIMUM IMPORT VOLUMES ANNUAL (BARRELS)
			FROM	TO	
1. Dome Petroleum Limited	GL-26(AO-1) ^(a)	Sarnia, Ont.	1/1/70	31/12/70	1,800,000
			1/1/71	31/12/71	2,565,500
			1/1/72	31/12/72	2,630,500
			1/1/73	31/12/73	2,605,500
			1/1/74	31/12/74	2,585,500
			1/1/75	31/12/75	2,555,500
			1/1/76	31/12/76	2,545,500
			1/1/77	31/12/77	2,510,500
			1/1/78	31/12/78	2,485,500
			1/1/79	31/12/79	2,475,500
			1/1/80	31/12/80	2,555,500
			1/1/81	31/12/81	2,745,500
			1/1/82	31/12/82	2,810,500
			1/1/83	31/12/83	2,630,500
			1/1/84	31/12/84	2,245,500
			1/1/85	31/12/85	1,965,500
			1/1/86	31/12/86	1,615,500
			1/1/87	31/12/87	604,000
			1/1/88	31/12/88	249,000
			1/1/89	31/12/89	199,000
2. Pan American Canada Oil Company, Ltd.	GL-27(AO-1) ^(a)	Sarnia, Ont.	1/1/70	31/12/70	1,800,000
			1/1/71	31/12/71	1,636,000
			1/1/72	31/12/72	1,491,000
			1/1/73	31/12/73	1,466,000
			1/1/74	31/12/74	1,446,000

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APPENDIX VII (cont'd)

SUBSISTING LICENCES AND ORDERS TO IMPORT NATURAL GAS AND PROPANE AS AT 31 DECEMBER 1970

B. PROPANE

IMPORTER	LICENCE OR ORDER NUMBER	POINT OF IMPORT	TERM OF LICENCE OR ORDER		MAXIMUM IMPORT VOLUMES ANNUAL (BARRELS)
			FROM	TO	
3. Dome Petroleum Limited	GL-31 (b)	Sarnia, Ont.	1/1/75	31/12/75	1,416,000
			1/1/76	31/12/76	1,401,000
			1/1/77	31/12/77	1,366,000
			1/1/78	31/12/78	1,341,000
			1/1/79	31/12/79	1,331,000
			1/1/80	31/12/80	1,411,000
			1/1/81	31/12/81	1,601,000
			1/1/82	31/12/82	1,666,000
			1/1/83	31/12/83	1,626,000
			1/1/84	31/12/84	1,591,000
			1/1/85	31/12/85	1,561,000
			1/1/86	31/12/86	1,536,000
			1/1/87	31/12/87	901,000
			1/1/88	31/12/88	881,000
			1/1/89	31/12/89	856,000
			1/1/90	31/12/90	481,000
			1/1/91	31/12/91	461,000
			1/1/92	31/12/92	456,000
			1/1/93	31/12/93	441,000
			1/1/94	31/10/94	168,000
			1/1/71	31/12/86	839,500
			1/1/87	31/12/87	906,000
			1/1/88	31/12/88	1,216,000

APPENDIX VII (cont'd)

SUBSISTING LICENCES AND ORDERS TO IMPORT NATURAL GAS AND PROPANE AS AT 31 DECEMBER 1970

B. PROPANE

IMPORTER	LICENCE OR ORDER NUMBER	POINT OF IMPORT	TERM OF LICENCE OR ORDER		MAXIMUM IMPORT VOLUMES ANNUAL (BARRELS)
			FROM	TO	
4. Pan American Canada Oil Company, Ltd.	GL-32 ^(b)	Sarnia, Ont.	1/1/89	31/12/89	1,241,000
			1/1/90	31/12/90	1,065,000
			1/1/91	31/12/91	1,045,000
			1/1/92	31/12/92	1,040,000
			1/1/93	31/12/93	1,025,000
5. TransCanada GasProducts Ltd.	GL-33 ^(a)	Sarnia, Ont.	1/1/94	31/10/94	655,000
			1/1/71	31/12/93	584,000
			1/1/94	31/10/94	486,400
			1/1/71	31/12/71	783,500
			1/1/72	31/12/75	993,500
6. TransCanada Gas Products Ltd.	GL-34 ^(b)	Sarnia, Ont.	1/1/76	31/12/82	998,500
			1/1/83	31/12/83	858,500
			1/1/84	31/12/84	508,500
			1/1/85	31/12/85	258,500
			1/1/71	31/12/85	401,500
			1/1/86	31/12/86	335,000
			1/1/87	31/12/87	25,000

- (a) This is an export-import licence whereby all propane exported at Gretna, Manitoba, must be re-imported at Sarnia, Ontario.
- (b) This licence contains a provision which allows re-importation at Sarnia, Ontario of all or part of the propane exported at Gretna, Manitoba.

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APPENDIX VIII

IMPORTS OF NATURAL GAS AND PROPANE

A. NATURAL GAS

IMPORTER AND LICENCE/ORDER	MAXIMUM		(MMcf)						CUMULATIVE TO 31/12/65	(a)		
	DAILY (Mcf)	ANNUAL (MMcf)	1966	1967	1968	1969	1970	CUMULATIVE TO 31/12/70		TOTAL AUTHORIZED IMPORTS	REMAINING UNDER LICENCES	
1. Coutts Gas Company Limited PC1955-1742	N/S	120	17	-	-	-	-	774	791	2,340	N/A	
2. Border Utilities Limited GO-2-66	1,000	N/S	26	33	32	36	35	-	162	N/S	N/A	
3. Milk River Gas Company Limited GO-6-66	1,000	N/S	62	73	72	76	74	-	357	N/S	N/A	
4. Union Gas Company of Canada, Limited PC1956-1848	N/S	5,500	5,404	2,316	-	-	-	64,843	72,563	N/S	N/A	
5. Union Gas Company of Canada, Limited GL1-1	55,000	15,500	10,140	12,814	15,192	11,449	10,625	7,855	68,075	167,042 (c)	98,967	

APPENDIX VIII (cont'd)

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IMPORTS OF NATURAL GAS AND PROPANE

A. NATURAL GAS

IMPORTER AND LICENCE/ORDER	MAXIMUM		(MMcf)					CUMULATIVE TO 31/12/65	(MMcf)				CUMULATIVE TO 31/12/70	TOTAL AUTHORIZED IMPORTS	REMAINING UNDER LICENCES (a)
	DAILY (Mc)	ANNUAL (MMcf)	1966	1967	1968	1969	1970		1966	1967	1968	1969	1970		
6. Trans-Canada Pipe Lines Limited GL1-2(AO-2)	N/S	25,500						(
1/11/65 to 1/11/66	N/S	30,400						(
1/11/66 to 1/11/67	N/S	15,300						(
1/11/67 to 1/11/68	N/S	10,200						(	24,677	29,543	13,499	5,054	126	86,500	9,534
1/11/68 to 1/11/69	N/S	5,100						(
1/11/69 to 1/11/70	N/S							(
7. Tecumseh Gas Storage Limited GL1-3	20,000	3,000	2,958	2,938	-	-	-	-						5,896 ^(c)	-
8. Trans-Canada Pipe Lines Limited GL1-4(AO-6)	N/S	N/S	-	12,836	47,873	18,320	-	-						82,303	N/A
9. Trans-Canada Pipe Lines Limited ^(d) GL-21(AO-5)	-	247,782	-	-	19,930	157,207	231,557	-	-	-				6,000,000	5,591,306
10. ICG Transmission Limited, GL-30 ^(e)	36,366	12,144	-	-	-	-	-	-	-	-				299,990	299,990

APPENDIX VIII (cont'd)

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APPENDIX VIII (cont'd)

page 3

IMPORTS OF NATURAL GAS AND PROPANE

A. NATURAL GAS

IMPORTER AND LICENCE/ORDER	MAXIMUM		(MMcf)					CUMULATIVE TO 31/12/65	(MMcf)				CUMULATIVE TO 31/12/70	TOTAL AUTHORIZED IMPORTS	REMAINING (a) UNDER LICENCES
	DAILY (Mcf)	ANNUAL (MMcf)	1966	1967	1968	1969	1970		1966	1967	1968	1969	1970		
11. Trans-Canada Pipe Lines Limited EO-2-62	N/S	N/S	-	-	-	-	-	2	-	-	-	-	2	5	N/A
12. Trans-Canada Pipe Lines Limited EO-1-63	70,000	N/S	-	-	-	-	-	199	-	-	-	-	199	1,000	N/A
13. Union Gas Company of Canada, Limited EO-2-63	N/S	N/S	-	-	-	-	-	55	-	-	-	-	55	55	-
14. Union Gas Company of Canada, Limited EO-3-63	N/S	N/S	-	-	-	-	-	1,083	-	-	-	-	1,083	1,965 ^(c)	N/A
15. Trans-Canada Pipe Lines Limited EO-1-64	140,000	N/S	-	-	-	-	-	2,511	-	-	-	-	2,511	2,500	N/A
16. Trans-Canada Pipe Lines Limited EO-2-64(AO-1)	150,000	N/S	-	-	-	-	-	1,756	-	-	-	-	1,756	3,450	N/A
															... 4

APPENDIX VIII (cont'd)

APPENDIX VIII (cont'd)

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IMPORTS OF NATURAL GAS AND PROPANE

A. NATURAL GAS

IMPORTER AND LICENCE/ORDER	MAXIMUM		(MMcf)					CUMULATIVE TO 31/12/70	TOTAL AUTHORIZED IMPORTS	REMAINING UNDER LICENCES ^(a)
	DAILY (Mcf)	ANNUAL (MMcf)	1966	1967	1968	1969	1970			
17. Union Gas Company of Canada, Limited EO-2-66(AO-1)	N/S	N/S	1,321	6,540	-	-	-	7,861	7,861 ^(c)	-
18. Union Gas Company of Canada, Limited EO-1-67	N/S	N/S	-	2,974	4,887	-	-	7,861	7,861 ^(c)	-
19. Trans-Canada Pipe Lines Limited EO-2-67	N/S	N/S	-	389	-	-	-	389	500	N/A
20. Westcoast Transmission Company Limited ^(f) EO-4-70	N/A	(f)	-	-	-	-	1	1	(f)	-
Gross Imports			83,345	70,456	101,485	192,142	242,418	734,451		
Deduct Re-import of Exports:										
Item 9, GL-21			-	-	19,930	157,207	231,557	408,694		
Item 10, GL-30			-	-	-	-	-	-		
Net Imports			83,345	70,456	81,555	34,935	10,861	325,757		

APPENDIX VIII (cont'd)

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APPENDIX VIII (cont'd)

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IMPORTS OF NATURAL GAS AND PROPANEA. NATURAL GASFOOTNOTES:

- (a) It may not be possible to import total volumes remaining under licences due to restrictions on peak day and annual volumes.
- (b) Licence cancelled in January 1966.
- (c) Converted from "wet base" to "dry base" for purpose of comparability.
- (d) This licence authorizes an export at Emerson, Manitoba for re-import at Sault Ste. Marie and Sarnia, Ontario to serve the Eastern Canadian market.
- (e) This licence authorizes an export near Sprague, Manitoba for re-import near Rainy River, Ontario.
- (f) This order authorizes an import of 12,000 U.S. gallons of liquefied natural gas, the volumes to be reported to the Board in Mcf equivalent at 1,000 Btu's per cubic foot.

N/S Not specified.

N/A Not applicable.

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APPENDIX VIII (cont'd)IMPORTS OF NATURAL GAS AND PROPANEB. PROPANE

IMPORTER	LICENCE/ORDER	TERM OF LICENCE/ORDER FROM TO	MAXIMUM ANNUAL IMPORT VOLUME (Barrels)	1970 IMPORTS (Barrels)
1. Dome Petroleum Limited	GL-26(AO-1) (a)	1/1/70 31/12/70 1/1/71 31/12/89	1,800,000 See Appendix VII	268,346
2. Pan American Canada Oil Company, Ltd.	GL-27(AO-1) (a)	1/1/70 31/12/70 1/1/71 31/10/94	1,800,000 See Appendix VII	416,467
3. Dome Petroleum Limited	GL-31 (b) (c)	1/1/71 31/10/94	See Appendix VII	-
4. Pan American Canada Oil Company, Ltd.	GL-32 (b) (c)	1/1/71 31/10/94	See Appendix VII	-
5. TransCanada GasProducts Ltd.	GL-33 (a) (c)	1/1/71 31/12/85	See Appendix VII	-
6. TransCanada GasProducts Ltd.	GL-34 (b) (c)	1/1/71 31/12/87	See Appendix VII	-

(a) This is an export-import licence whereby all propane exported at Gretna, Manitoba must be re-imported at Sarnia, Ontario.

(b) This licence contains a provision which allows re-importation at Sarnia, Ontario of all or part of the propane exported at Gretna, Manitoba.

(c) Imports under this licence are authorized to commence on 1/1/71.

* * * *

APPENDIX IX

RECEIPTS OF CANADIAN CRUDE OIL AND EQUIVALENT IN THE UNITED STATES 1969 AND 1970

(Barrels of 35 Canadian Gallons)

Districts I-IV	Total	Daily Average	1970	
			Total for Year	Daily Average
American Oil Company			2,916,914	7,992
American Oil Company			3,990	11
APCO Oil Corporation			437,381	1,198
Ashland Oil & Refining Company			16,360,039	44,822
Ashland Oil & Refining Company			790,558	2,166
Atlantic Richfield Oil Company			2,835,135	7,767
Atlantic Richfield Oil Company			275,480	755
Bay Refining Company			5,105,286	13,987
Big West Oil Company			527,161	1,444
Cities Service Oil Company			3,507,089	9,609
Clark Oil & Refining Corporation			3,415,199	9,357
Continental Oil Company			9,172,733	25,131
Continental Oil Company			1,230,463	3,371
Continental Oil Company			72,671	199
Crystal Refining Company of Carson City Inc.			6,167,861	16,898
Farmers Union Central Exchange Inc.			690,508	1,892
Gladieux Refining Inc.			2,155,653	5,906
Great Northern Oil Company			272,364	746
Gulf Oil Corporation			22,154,838	60,698
Humble Oil & Refining Company			6,765,207	18,535
			2,402,159	6,581
Whiting, Indiana				
Mandan, N. Dakota				
Kansas City, Kansas				
N. Tonawanda, New York	14,689,755	40,246		
Canton, Ohio	155,024	425		
East Chicago, Indiana				
Sinclair, Wyoming	787,009	2,156		
Bay City, Michigan	4,471,891	12,252		
Kevin, Montana	322,493	884		
E. Chicago, Indiana				
Blue Island, Illinois				
Billings, Montana				
Denver, Colorado	8,756,530	23,990		
Ponca City, Oklahoma	710,218	1,946		
Wrenshall, Minnesota				
Carson City, Michigan	6,362,256	17,431		
Laurel, Montana				
Fort Wayne, Indiana	516,814	1,416		
St. Paul, Minnesota				
Toledo, Ohio	20,614,797	56,477		
Billings, Montana	7,104,062	19,463		
	416,072	1,140		

APPENDIX IX (cont'd)

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RECEIPTS OF CANADIAN CRUDE OIL AND EQUIVALENT IN THE UNITED STATES 1969 AND 1970

(Barrels of 35 Canadian Gallons)

	1969		1970	
	Total for Year	Daily Average	Total for Year	Daily Average
Districts I-IV				
Husky Oil Company			381,545	1,045
Lakehead Pipe Line Company Inc.	113,646	311	203,442	557
Laketon Asphalt Refining Inc.			340,318	932
Leonard Refineries, Inc.	3,266,005	8,948	5,142,269	14,089
Marathon Oil Company	2,634,076	7,217	3,985,533	10,919
Midland Co-Op Inc.			528,000	1,447
Mobil Oil Company	10,832,667	29,679	12,133,989	33,244
Mobil Oil Company	770,638	2,111	1,403,850	3,846
Mobil Oil Company	461,239	1,264	1,069,501	2,930
Murphy Oil Corporation	9,778,175	26,790	10,007,952	27,419
Northwestern Refining Company	12,694,195	34,779	13,683,593	37,489
Oseola Refining Company			1,068,234	2,927
Phillips Petroleum Company	1,089,214	2,984	746,154	2,044
Standard Oil Company (Ohio)			13,049,138	35,751
Sun Oil Company	12,928,374	35,420	5,448,364	14,927
Texaco Inc.	5,513,149	15,105	1,734,225	4,751
Union Oil Company of California			1,740,512	4,769
Union Oil Company of California	25,985	71	18,882	52
United Refining Company	857,543	2,349	2,973,311	8,146
Witco Chemical Corporation			162,317	445
Others	167,700	459	126,377	346
Total Districts I-IV	126,039,527	345,313	163,206,195	447,140

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APPENDIX IX (cont'd)

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RECEIPTS OF CANADIAN CRUDE OIL AND EQUIVALENT IN THE UNITED STATES 1969 AND 1970

(Barrels of 35 Canadian Gallons)

District V	1969		1970	
	Total for Year	Daily Average	Total for Year	Daily Average
Douglas Oil Company of California	303,194	830	3,479,662	9,533
Humble Oil & Refining Company	1,820,649	4,988	361,551	991
Mobil Oil Company	21,105,245	57,823	22,549,573	61,780
Mobil Oil Company			373,090	1,022
Phillips Petroleum Company			237,272	650
Shell Oil Company	28,845,474	79,029	27,793,408	76,146
Shell Oil Company	2,253,217	6,173	2,008,701	5,503
Standard Oil Company of California			250,977	688
Texaco Incorporated	21,464,378	58,807	22,570,628	61,837
Total District V	75,792,157	207,650	79,624,862	218,150
Total U.S.A.	201,831,684	552,963	242,831,057	665,290

Source: Company reports to the National Energy Board

Note:

This table replaces the table carried in previous reports and shows receipts of Exported Canadian Crude Oil and Equivalent by U.S. buyers, instead of Exports. For the years 1969 and 1970. The Export figures corresponding to those formerly reported are as follows:

	1969	1970
Districts I-IV	126,910,431 bbls	347,700 b/d
District V	75,792,157 bbls	164,730,762 bbls
Total U.S.A.	202,702,588 bbls	207,650 b/d
		79,624,862 bbls
		244,355,624 bbls
		451,317 b/d
		218,150 b/d
		669,467 b/d

The difference between the exported volumes and the receipts shown above, which are due primarily to oil in transit, are as follows:

1969 - 870,904 barrels = 2,286 barrels daily
 1970 -1,524,567 barrels = 4,177 barrels daily

* * * *

APPENDIX X

IMPORTS OF CRUDE OIL AND PETROLEUM PRODUCTS 1966 - 1970

(Barrels of 35 Canadian gallons per day)

	<u>1966</u>	<u>1967</u>	<u>1968(r)</u>	<u>1969(r)</u>	<u>1970(a)</u>
Crude Oil	434,378	447,982	486,812	522,439	571,104
Petroleum Products	163,477	186,829	202,174	204,533	197,498
TOTAL	<u>597,855</u>	<u>634,811</u>	<u>688,986</u>	<u>726,972</u>	<u>768,602</u>

(r) revised.

(a) subject to revision.

Source: Company reports to the National Energy Board.

* * * * *

APPENDIX XI

IMPORTS AND NET TRANSFERS (a) OF PETROLEUM PRODUCTS INTO CENTRAL & WESTERN ONTARIO 1961 - 1970
(Barrels of 35 Canadian gallons per day)

	MOTOR GASOLINE	MIDDLE DISTILLATES	TOTAL LIGHT OILS	RESIDUAL FUEL OIL	OTHER PRODUCTS	TOTAL RESID. & OTHER PROD.	TOTAL ALL PRODUCTS
1961	16,586	24,909	41,495	6,715	7,131	13,846	55,341
1962	14,537	20,001	34,538	9,632	8,394	18,026	52,564
1963	13,931	18,905	32,836	11,911	6,208	18,119	50,955
1964	1,845	9,136	10,981	14,841	7,549	22,390	33,371
1965	2,062	10,468	12,530	18,273	7,843	26,116	38,646
1966	3,891	16,295	20,186	16,964	9,199	26,163	46,349
1967	5,276	19,018	24,294	14,726	13,955	28,681	52,975
1968	6,684	24,249	30,933	15,074	14,783	29,857	60,790
1969	8,247	19,708	27,955	17,666	16,626	34,292	62,247
1970 (b)	9,495	18,525	28,020	22,489	16,393	38,882	66,902

(a) Reported as transfers from Quebec and Maritime Provinces to central and western Ontario.

(b) subject to revision.

Source: Company reports to the National Energy Board.

* * * * *

APPENDIX XII

PIPE LINE LEAKS, BREAKS AND MALFUNCTIONS

The following is a summary of leaks, breaks, malfunctions and other pipe line incidents reported to the Board during 1970 by companies under the jurisdiction of the National Energy Board:

<u>Origin of Reported Incidents</u>	<u>Number of Incidents</u>
Internal and external corrosion of pipe and equipment	10
Defective Mill Welds	8
Defective Field Welds	7
Pipe Material Defects	1
Defective Equipment and Piping	6
Damage caused by other parties	2
Miscellaneous	4
Explosion	1
	—
TOTAL	39
	==

APPENDIX XIII

NEW LICENCES AND ORDERS TO EXPORT ELECTRIC POWER AND ENERGY DURING 1970

A. NEW LICENCES ISSUED IN 1970 PURSUANT TO SECTION 82

APPLICANT	CLASS	KILOWATTS (THOUSANDS)	ANNUAL KILOWATTHOURS (MILLIONS)	TERM	APPLICATION HEARD	ISSUED	LICENCE NO.
1. British Columbia Hydro and Power Authority	Firm	3,000	10	17/2/70 to 30/6/74	8/10/69	3/2/70	EL-46
2. British Columbia Hydro and Power Authority	Carrier Transfer	200,000	1,000	17/2/70 to 30/6/74	8/10/69	3/2/70	EL-47
3. British Columbia Hydro and Power Authority	Firm	-	1,700*	17/2/70 to 31/12/72	8/10/69	3/2/70	EL-48
4. British Columbia Hydro and Power Authority	Interruptible	-	1,600	17/2/70 to 30/6/74	8/10/69	3/2/70	EL-49
5. British Columbia Hydro and Power Authority	Interruptible	-	4,000	17/2/70 to 30/6/74	8/10/69	3/2/70	EL-50
6. The New Brunswick Electric Power Commission	Firm	200	1,000	3/3/70 to 30/6/75	21/10/69	20/2/70	EL-51
7. The New Brunswick Electric Power Commission	Firm	-	477	3/3/70 to 30/6/75	21/10/69	20/2/70	EL-52
8. The New Brunswick Electric Power Commission	Interruptible	-	2,500	3/3/70 to 30/6/75	21/10/69	20/2/70	EL-53

* Under licence EL-48 the quantity shown is that allowed for the entire term of the licence.

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APPENDIX XIII (cont'd)

NEW LICENCES AND ORDERS TO EXPORT ELECTRIC POWER AND ENERGY DURING 1970

A. NEW LICENCES ISSUED IN 1970 PURSUANT TO SECTION 82

APPLICANT	CLASS	KILOWATTS (THOUSANDS)	ANNUAL KILOWATTHOURS (MILLIONS)	TERM	APPLICATION HEARD	ISSUED	LICENCE NO.
9. The Manitoba Hydro-Electric Board	Firm	50	220.8	1/5/70 to 31/10/75	4/11/69	5/3/70	EL-54
10. The Manitoba Hydro-Electric Board	Interruptible	-	100	5/3/70 to 30/4/77	4/11/69	5/3/70	EL-55
11. The Manitoba Hydro-Electric Board	Firm	-	350	5/3/70 to 30/4/77	4/11/69	5/3/70	EL-56
12. The Manitoba Hydro-Electric Board	Interruptible	-	800	12/7/70 to 31/3/75	4/11/69	5/3/70	EL-57
13. Canadian Niagara Power Company, Limited	Firm	35	307	1/4/70 to 31/3/75	17/2/70	12/3/70	EL-58
14. Canadian Niagara Power Company, Limited	Interruptible	-	100	1/4/70 to 31/3/75	17/2/70	12/3/70	EL-59
15. Fraser Companies, Limited	Firm	50	300	1/1/71 to 31/3/75	3/11/70	15/12/70	EL-60
16. Fraser Companies, Limited	Interruptible	-	30	1/1/71 to 31/3/75	3/11/70	15/12/70	EL-61

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APPENDIX XIII (cont'd)

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NEW LICENCES AND ORDERS TO EXPORT ELECTRIC POWER AND ENERGY DURING 1970

B. NEW ORDERS ISSUED IN 1970 PURSUANT TO SECTION 6A OF THE REGULATIONS UNDER PART VI OF THE ACT*

APPLICANT	CLASS	KILOWATTS	ANNUAL KILOWATTHOURS (MILLIONS)	TERM FROM DATE OF ISSUE - MONTHS	ISSUED	ORDER NUMBER
1. Hydro-Quebec	Firm	20	35	36	19/3/70	ELO-80
2. Hydro-Quebec	Firm	50	130	36	19/3/70	ELO-81
3. Hydro-Quebec	Firm	20	100	36	14/4/70	ELO-82
4. Hydro-Quebec	Firm	20	50	36	14/4/70	ELO-83
5. Hydro-Quebec	Firm	45	85	36	14/4/70	ELO-84
6. Hydro-Quebec	Firm	5	5	36	14/4/70	ELO-85
7. Hydro-Quebec	Firm	2	2	36	14/4/70	ELO-86
8. Canadian Transit Company	Firm	100	25	36	14/4/70	ELO-87
9. The New Brunswick Electric Power Commission	Firm	200	200	36	25/8/70	ELO-88
10. The New Brunswick Electric Power Commission	Firm	12	15	36	25/8/70	ELO-89
11. The New Brunswick Electric Power Commission	Firm	25	10	36	25/8/70	ELO-90

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APPENDIX XIII (cont'd)

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NEW LICENCES AND ORDERS TO EXPORT ELECTRIC POWER AND ENERGY DURING 1970

B. NEW ORDERS ISSUED IN 1970 PURSUANT TO SECTION 6A OF THE REGULATIONS UNDER PART VI OF THE ACT*

APPLICANT	CLASS	KILOWATTS	ANNUAL KILOWATTHOURS (MILLIONS)	TERM FROM DATE OF ISSUE - MONTHS		ISSUED	ORDER NUMBER
12. Hydro-Quebec	Firm	45	140	36		22/10/70	ELO-91
13. British Columbia Hydro and Power Authority	Firm	200	600	36		29/10/70	ELO-92
14. The Detroit and Windsor Subway Company	Firm	300	1,000	36		5/11/70	ELO-93

* Under Section 6A the Board may by order authorize the exportation of not more than 4,000 kilowatts of electrical power and not more than 20,000,000 kilowatthours per year of electrical energy for a term not exceeding three years upon such terms and conditions as the Board may prescribe.

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APPENDIX XIII (cont'd)

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NEW LICENCES AND ORDERS TO EXPORT ELECTRIC POWER AND ENERGY DURING 1970

C. AMENDING ORDERS ISSUED IN 1970 RELATIVE TO ELECTRIC POWER EXPORT LICENCES

<u>APPLICANT</u>	<u>ASSOCIATED LICENCE</u>	<u>ISSUED</u>	<u>ORDER NUMBER</u>
1. Southern Canada Power Company Limited	EL-30	8/10/70	A0-3-EL-30
2. Southern Canada Power Company Limited	EL-31	8/10/70	A0-3-EL-31
3. The Ontario-Minnesota Pulp and Paper Company Limited	EL-28	17/12/70	A0-2-EL-28

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APPENDIX XIV

EXPORTS OF ELECTRIC ENERGY - CALENDAR YEAR 1970

EXPORTER	LICENCE NUMBER	THOUSANDS OF KILOWATTHOURS				REPORTED DOLLAR VALUE OF EXPORT	
		LICENCE AUTHORIZATION		GROSS ENERGY EXPORTED		FIRM	INTERRUPTIBLE
		FIRM	INTERRUPTIBLE	FIRM	INTERRUPTIBLE		
						\$	\$
1. Maine and New Brunswick Electrical Power Company Limited	EL-22 EL-23	250,000	25,000	124,593	165	1,024,728.00	82.00
2. Fraser Companies, Limited	EL-37 EL-38	120,000	30,000	114,135	14,635	1,084,282.00	139,033.00
3. The New Brunswick Electric Power Commission	EL-39 EL-40 EL-41 EL-42 EL-43 EL-51 EL-52 EL-53 ELO-88-90	225,000 76,180 100,000 1,000,000 477,000 225	150,000 116,000 2,500,000	139,600 16,962 46,689 71,472 21,026 154	81,634 25,588 100,169	820,174.00 106,837.00 (a) 441,055.00 262,104.00 5,366.00	458,403.00 153,647.00 514,450.00
SUB TOTAL NEW BRUNSWICK				534,631	222,191	3,744,546.00	1,265,615.00
4. Cedars Rapids Transmission Company Limited	EL-44		500,000		258,704		857,248.00
5. Quebec Hydro-Electric Commission	ELO-80 to 86 & 91	547		316		4,439.00	
6. Southern Canada Power Company Limited	AO-2-EL-30 AO-2-EL-31	19,850	61,250	13,307	37,603	166,340.00	201,450.00
SUB TOTAL QUEBEC				13,623	296,307	170,779.00	1,058,698.00

APPENDIX XIV (cont'd)

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EXPORTS OF ELECTRIC ENERGY - CALENDAR YEAR 1970

THOUSANDS OF KILOWATTHOURS

EXPORTER	LICENCE NUMBER	LICENCE AUTHORIZATION		GROSS ENERGY EXPORTED		REPORTED DOLLAR VALUE OF EXPORT	
		FIRM	INTERRUPTIBLE	FIRM	INTERRUPTIBLE	FIRM	INTERRUPTIBLE
						\$	\$
7. The Hydro-Electric Power Commission of Ontario.	EL-32 EL-33 EL-34	15,000	6,000,000 105,000	1,093	2,827,430 3,674	2,186.00	22,612,903.00 18,003.00
8. Canadian Niagara Power Company Limited	EL-58 EL-59	307,000	100,000	295,570	91,386	1,731,690.00	411,237.00
9. The Ontario-Minnesota Pulp and Paper Company, Limited	EL-28	127,020		119,774		939,167.00	
10. The Detroit and Windsor Subway Company	ELO-77	1,000		702		-	
11. The Canadian Transit Company	ELO-87	25		24		-	
SUB TOTAL ONTARIO				417,163	2,922,490	2,673,043.00	23,042,143.00
12. Manitoba Hydro-Electric Board	EL-55 EL-56 EL-57 ELO-78	350,000 15	100,000 800,000	11,650 5	23,130 258,770	169,833.00 135.00	46,984.00 1,637,962.00
SUB TOTAL MANITOBA				11,655	281,900	169,968.00	1,684,946.00

APPENDIX XIV (cont'd)

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APPENDIX XIV (cont'd)

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EXPORTS OF ELECTRIC ENERGY - CALENDAR YEAR 1970

EXPORTER	LICENCE NUMBER	THOUSANDS OF KILOWATTHOURS				REPORTED DOLLAR VALUE OF EXPORT	
		LICENCE AUTHORIZATION		GROSS ENERGY EXPORTED		FIRM	INTERRUPTIBLE
		FIRM	INTERRUPTIBLE	FIRM	INTERRUPTIBLE		
13. British Columbia Hydro and Power Authority	EL-46	10,000		5,786		69,043.00 (c)	\$ -
	EL-47	1,000,000		-		-	-
	EL-48		600,000				-
	EL-49		1,554,000				
	EL-50		4,000,000		639,242	9,136.00 (c)	1,461,160.00
14. Cominco Limited	EL-76	600		129			
	AO-1-EL-20						
15. West Kootenay Power and Light Company Limited	EL-45		500,000		10,516		464,118.00
	EL-45		1,500,000		240,616		
SUB TOTAL BRITISH COLUMBIA	EL-79	50		35		681.00	
						78,860.00	1,925,278.00
TOTAL CANADA				5,950	890,374		
				983,022	4,613,262	6,837,196.00	28,976,680.00

- (a) No dollar value. Carrier Transfer Energy wheeled through Maine, back to New Brunswick.
- (b) Includes preliminary values for December.
- (c) Reported for eleven months only (January not reported).

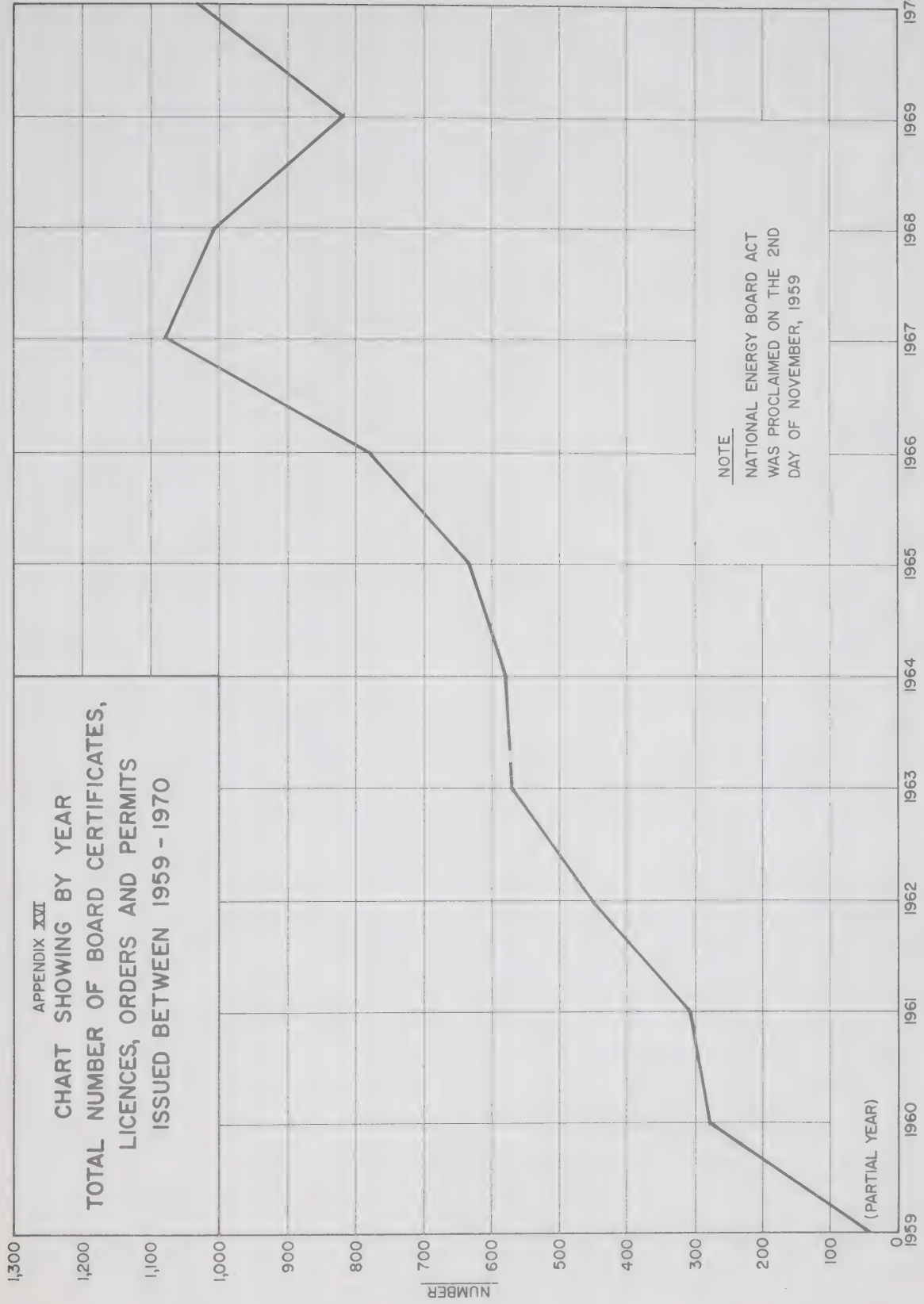
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APPENDIX XVTOTAL CANADIAN ELECTRIC ENERGY SUPPLY AND TRADE WITH THE UNITED STATES - CALENDAR YEAR 1970(MILLIONS OF KILOWATTHOURS)

Electric Energy Generation for all Canada	-	203,740 (preliminary)
Electric Energy Importation from U.S.A.	-	<u>3,194</u> "
Total Canadian Electric Energy Supply	-	206,934 "
Electric Energy Export (Gross) to U.S.A.	-	983 (firm) - 0.5% Canadian Supply
		4,613 (interruptible) - 2.2% of Canadian Supply

* * * *

CHART SHOWING BY YEAR
TOTAL NUMBER OF BOARD CERTIFICATES,
LICENCES, ORDERS AND PERMITS
ISSUED BETWEEN 1959 - 1970



BINDING SECT. APR 11 1972

